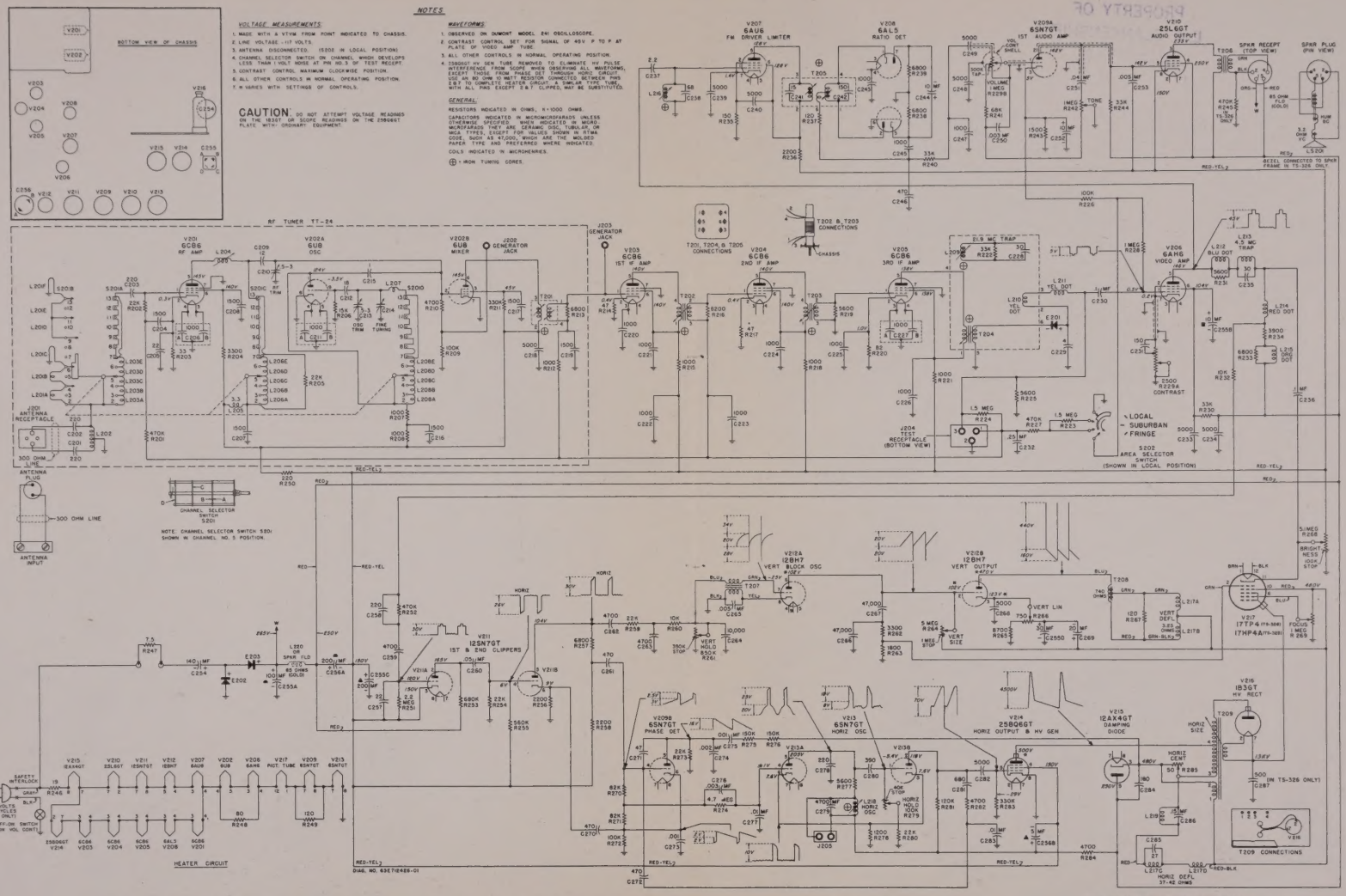
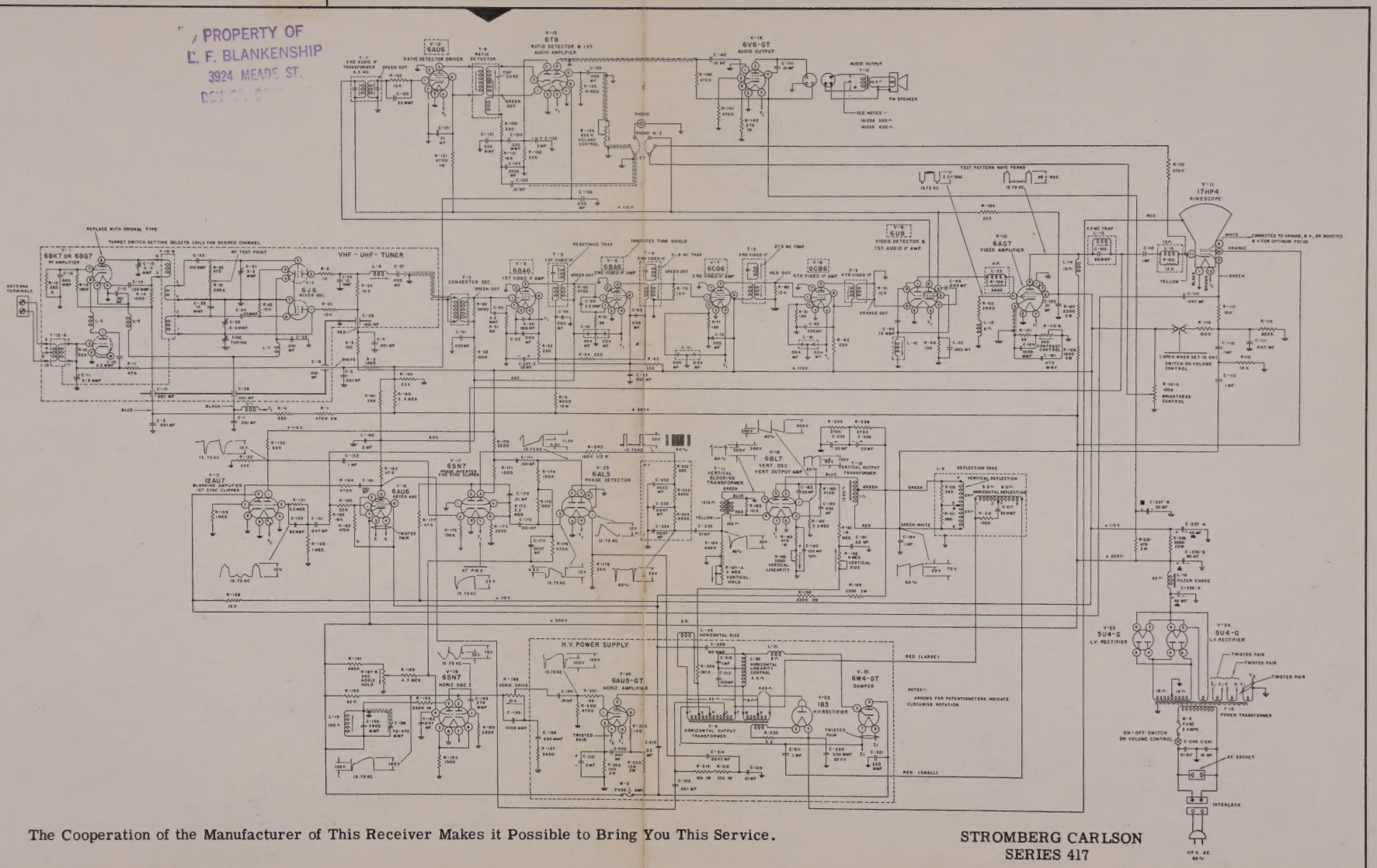
CONTENTS

TRADE NAME	MODEL	SET AND FOLDER No.
Aircastle	659.511, 659.513	167-2
Airline	05GHM-934A, 15GHM-934A, 94GHM-934A	167-3
Airline	25GDC-994A	167-4
Dewald	D-E517A	167-5
Emerson	709A (Ch. 120162-A) Tel. Rec.	167-6
Ford	2CF754 (FAC-18805-B)	167-7
General Electric	754, 756	167-8
Hallicrafters	S-82	167-9
Hallicrafters	14808 (Ch. R900D), 20823 (Ch. M900D), 20823B (Ch. L900D) Tel. Rec.	167-10
Hudson	225908 (late) (Ch. 749-1), 229403 (Ch. 749-2)	167-11
Knight	93-431	167-12
Lincoln	2CH753 (FAA-18805-A)	167-7
Mercury	2CM752 (FAB-18805-A)	167-7
Motorola	17K10E, 17T5E, F, 17T6G (Ch. TS-314A, B, TS-315A, B) Tel. Rec.	167-13
Motorola	17K12, A, B, BA, W, WA, 17T7, A, 17T8, A, B, BA (Ch. TS-325, TS-326) Tel. Rec.	167-1A
Sparton	5207, 5208, 5210 (Ch. 26SS172, A, B), 5220, 5225, 5226 (Ch. 26SD172C), 5262, 5263 (Ch. 26SS172, A), 5265, 5267, 5268 (Ch. 26SD172, A), 5270, 5272, 5273 (Ch. 26SD172C) Tel. Rec.	167-14
Stromberg-Carlson	Series 417 Tel. Rec.	167-1A
Westinghouse	H-667T17, H-668T17, H-678K17, H-679K17 (Ch. V-2216-1) Tel. Rec.	167-15


NOTES
VOLTAGE MEASUREMENTS:
1. MADE WITH A VTVM FROM POINT INDICATED TO CHASSIS.
2. LINE VOLTAGE - 117 VOLTS.
3. ANTENNA DISCONNECTED. (S202 IN LOCAL POSITION)
4. CHANNEL SELECTOR SWITCH ON CHANNEL WHICH DEVELOPS LESS THAN 1 VOLT NOISE AT PIN NO. 3 OF TEST RECEPT.
5. CONTRAST CONTROL MAXIMUM CLOCKWISE POSITION.
6. ALL OTHER CONTROLS IN NORMAL OPERATING POSITION.
7. ⊕ VARIES WITH SETTINGS OF CONTROLS.
CAUTION: DO NOT ATTEMPT VOLTAGE READINGS ON THE 1B3GT OR SCOPE READINGS ON THE 25BQ6GT PLATE WITH ORDINARY EQUIPMENT.
WAVEFORMS:
1. OBSERVED ON DUMONT MODEL 241 OSCILLOSCOPE.
2. CONTRAST CONTROL SET FOR SIGNAL OF 45V P TO P AT PLATE OF VIDEO AMP TUBE.
3. ALL OTHER CONTROLS IN NORMAL OPERATING POSITION.
4. 25BQ6GT HV SEN TUBE REMOVED TO ELIMINATE HV PULSE INTERFERENCE FROM SCOPE WHEN OBSERVING ALL WAVEFORMS, EXCEPT THOSE FROM PHASE DET THROUGH HORIZ CIRCUIT. USE 6W, 80 OHM 10 WATT RESISTOR CONNECTED BETWEEN PINS 1 & 2 TO COMPLETE HEATER CIRCUIT. A SIMILAR SUBSTITUTE FOR 6BT4 XL, PIN 5 EXCEPT 2 & 7, CLIPPED, MAY BE SUBSTITUTED.
GENERAL:
RESISTORS INDICATED IN OHMS, K=1000 OHMS.
CAPACITORS INDICATED IN MICROMICROFARADS UNLESS OTHERWISE SPECIFIED. WHEN INDICATED IN MICRO-MICROFARADS THEY ARE CERAMIC DISC, TUBULAR, OR MICA TYPES, EXCEPT FOR VALUES SHOWN IN RTMA CODE, SUCH AS 47,000, WHICH ARE THE MOLDED PAPER TYPE AND PREFERRED WHERE INDICATED.
COILS INDICATED IN MICROHENRIES.
⊕ = IRON TUNING CORES.
BOTTOM VIEW OF CHASSIS
V201
V202
V203
V204
V205
V206
V207
V208
V209
V210
V211
V212
V213
V214
V215
V216
C254
C255
C256
RF TUNER TT-24
V201 6CB6 RF AMP
V202A 6U8 OSC
V202B 6U8 MIXER
J202 GENERATOR JACK
J203 GENERATOR JACK
T201, T204, & T205 CONNECTIONS
T202 & T203 CONNECTIONS
CHASSIS
V203 6CB6 1ST IF AMP
V204 6CB6 2ND IF AMP
V205 6CB6 3RD IF AMP
21.9 MC TRAP
V206 6AH6 VIDEO AMP
L213 4.5 MC TRAP
L214 4.5 MC TRAP
L215 DRG DOT
L216 DRG DOT
L217 BLU DOT
L218 BLU DOT
L219 RED DOT
L220 YEL DOT
L221 YEL DOT
L222 GRN DOT
L223 GRN DOT
L224 RED DOT
L225 BLU DOT
L226 BLU DOT
L227 BLU DOT
L228 BLU DOT
L229 BLU DOT
L230 BLU DOT
L231 BLU DOT
L232 BLU DOT
L233 BLU DOT
L234 BLU DOT
L235 BLU DOT
L236 BLU DOT
L237 BLU DOT
L238 BLU DOT
L239 BLU DOT
L240 BLU DOT
L241 BLU DOT
L242 BLU DOT
L243 BLU DOT
L244 BLU DOT
L245 BLU DOT
L246 BLU DOT
L247 BLU DOT
L248 BLU DOT
L249 BLU DOT
L250 BLU DOT
L251 BLU DOT
L252 BLU DOT
L253 BLU DOT
L254 BLU DOT
L255 BLU DOT
L256 BLU DOT
L257 BLU DOT
L258 BLU DOT
L259 BLU DOT
L260 BLU DOT
L261 BLU DOT
L262 BLU DOT
L263 BLU DOT
L264 BLU DOT
L265 BLU DOT
L266 BLU DOT
L267 BLU DOT
L268 BLU DOT
L269 BLU DOT
L270 BLU DOT
L271 BLU DOT
L272 BLU DOT
L273 BLU DOT
L274 BLU DOT
L275 BLU DOT
L276 BLU DOT
L277 BLU DOT
L278 BLU DOT
L279 BLU DOT
L280 BLU DOT
L281 BLU DOT
L282 BLU DOT
L283 BLU DOT
L284 BLU DOT
L285 BLU DOT
L286 BLU DOT
L287 BLU DOT
L288 BLU DOT
L289 BLU DOT
L290 BLU DOT
L291 BLU DOT
L292 BLU DOT
L293 BLU DOT
L294 BLU DOT
L295 BLU DOT
L296 BLU DOT
L297 BLU DOT
L298 BLU DOT
L299 BLU DOT
L300 BLU DOT
L301 BLU DOT
L302 BLU DOT
L303 BLU DOT
L304 BLU DOT
L305 BLU DOT
L306 BLU DOT
L307 BLU DOT
L308 BLU DOT
L309 BLU DOT
L310 BLU DOT
L311 BLU DOT
L312 BLU DOT
L313 BLU DOT
L314 BLU DOT
L315 BLU DOT
L316 BLU DOT
L317 BLU DOT
L318 BLU DOT
L319 BLU DOT
L320 BLU DOT
L321 BLU DOT
L322 BLU DOT
L323 BLU DOT
L324 BLU DOT
L325 BLU DOT
L326 BLU DOT
L327 BLU DOT
L328 BLU DOT
L329 BLU DOT
L330 BLU DOT
L331 BLU DOT
L332 BLU DOT
L333 BLU DOT
L334 BLU DOT
L335 BLU DOT
L336 BLU DOT
L337 BLU DOT
L338 BLU DOT
L339 BLU DOT
L340 BLU DOT
L341 BLU DOT
L342 BLU DOT
L343 BLU DOT
L344 BLU DOT
L345 BLU DOT
L346 BLU DOT
L347 BLU DOT
L348 BLU DOT
L349 BLU DOT
L350 BLU DOT
L351 BLU DOT
L352 BLU DOT
L353 BLU DOT
L354 BLU DOT
L355 BLU DOT
L356 BLU DOT
L357 BLU DOT
L358 BLU DOT
L359 BLU DOT
L360 BLU DOT
L361 BLU DOT
L362 BLU DOT
L363 BLU DOT
L364 BLU DOT
L365 BLU DOT
L366 BLU DOT
L367 BLU DOT
L368 BLU DOT
L369 BLU DOT
L370 BLU DOT
L371 BLU DOT
L372 BLU DOT
L373 BLU DOT
L374 BLU DOT
L375 BLU DOT
L376 BLU DOT
L377 BLU DOT
L378 BLU DOT
L379 BLU DOT
L380 BLU DOT
L381 BLU DOT
L382 BLU DOT
L383 BLU DOT
L384 BLU DOT
L385 BLU DOT
L386 BLU DOT
L387 BLU DOT
L388 BLU DOT
L389 BLU DOT
L390 BLU DOT
L391 BLU DOT
L392 BLU DOT
L393 BLU DOT
L394 BLU DOT
L395 BLU DOT
L396 BLU DOT
L397 BLU DOT
L398 BLU DOT
L399 BLU DOT
L400 BLU DOT
L401 BLU DOT
L402 BLU DOT
L403 BLU DOT
L404 BLU DOT
L405 BLU DOT
L406 BLU DOT
L407 BLU DOT
L408 BLU DOT
L409 BLU DOT
L410 BLU DOT
L411 BLU DOT
L412 BLU DOT
L413 BLU DOT
L414 BLU DOT
L415 BLU DOT
L416 BLU DOT
L417 BLU DOT
L418 BLU DOT
L419 BLU DOT
L420 BLU DOT
L421 BLU DOT
L422 BLU DOT
L423 BLU DOT
L424 BLU DOT
L425 BLU DOT
L426 BLU DOT
L427 BLU DOT
L428 BLU DOT
L429 BLU DOT
L430 BLU DOT
L431 BLU DOT
L432 BLU DOT
L433 BLU DOT
L434 BLU DOT
L435 BLU DOT
L436 BLU DOT
L437 BLU DOT
L438 BLU DOT
L439 BLU DOT
L440 BLU DOT
L441 BLU DOT
L442 BLU DOT
L443 BLU DOT
L444 BLU DOT
L445 BLU DOT
L446 BLU DOT
L447 BLU DOT
L448 BLU DOT
L449 BLU DOT
L450 BLU DOT
L451 BLU DOT
L452 BLU DOT
L453 BLU DOT
L454 BLU DOT
L455 BLU DOT
L456 BLU DOT
L457 BLU DOT
L458 BLU DOT
L459 BLU DOT
L460 BLU DOT
L461 BLU DOT
L462 BLU DOT
L463 BLU DOT
L464 BLU DOT
L465 BLU DOT
L466 BLU DOT
L467 BLU DOT
L468 BLU DOT
L469 BLU DOT
L470 BLU DOT
L471 BLU DOT
L472 BLU DOT
L473 BLU DOT
L474 BLU DOT
L475 BLU DOT
L476 BLU DOT
L477 BLU DOT
L478 BLU DOT
L479 BLU DOT
L480 BLU DOT
L481 BLU DOT
L482 BLU DOT
L483 BLU DOT
L484 BLU DOT
L485 BLU DOT
L486 BLU DOT
L487 BLU DOT
L488 BLU DOT
L489 BLU DOT
L490 BLU DOT
L491 BLU DOT
L492 BLU DOT
L493 BLU DOT
L494 BLU DOT
L495 BLU DOT
L496 BLU DOT
L497 BLU DOT
L498 BLU DOT
L499 BLU DOT
L500 BLU DOT
L501 BLU DOT
L502 BLU DOT
L503 BLU DOT
L504 BLU DOT
L505 BLU DOT
L506 BLU DOT
L507 BLU DOT
L508 BLU DOT
L509 BLU DOT
L510 BLU DOT
L511 BLU DOT
L512 BLU DOT
L513 BLU DOT
L514 BLU DOT
L515 BLU DOT
L516 BLU DOT
L517 BLU DOT
L518 BLU DOT
L519 BLU DOT
L520 BLU DOT
L521 BLU DOT
L522 BLU DOT
L523 BLU DOT
L524 BLU DOT
L525 BLU DOT
L526 BLU DOT
L527 BLU DOT
L528 BLU DOT
L529 BLU DOT
L530 BLU DOT
L531 BLU DOT
L532 BLU DOT
L533 BLU DOT
L534 BLU DOT
L535 BLU DOT
L536 BLU DOT
L537 BLU DOT
L538 BLU DOT
L539 BLU DOT
L540 BLU DOT
L541 BLU DOT
L542 BLU DOT
L543 BLU DOT
L544 BLU DOT
L545 BLU DOT
L546 BLU DOT
L547 BLU DOT
L548 BLU DOT
L549 BLU DOT
L550 BLU DOT
L551 BLU DOT
L552 BLU DOT
L553 BLU DOT
L554 BLU DOT
L555 BLU DOT
L556 BLU DOT
L557 BLU DOT
L558 BLU DOT
L559 BLU DOT
L560 BLU DOT
L561 BLU DOT
L562 BLU DOT
L563 BLU DOT
L564 BLU DOT
L565 BLU DOT
L566 BLU DOT
L567 BLU DOT
L568 BLU DOT
L569 BLU DOT
L570 BLU DOT
L571 BLU DOT
L572 BLU DOT
L573 BLU DOT
L574 BLU DOT
L575 BLU DOT
L576 BLU DOT
L577 BLU DOT
L578 BLU DOT
L579 BLU DOT
L580 BLU DOT
L581 BLU DOT
L582 BLU DOT
L583 BLU DOT
L584 BLU DOT
L585 BLU DOT
L586 BLU DOT
L587 BLU DOT
L588 BLU DOT
L589 BLU DOT
L590 BLU DOT
L591 BLU DOT
L592 BLU DOT
L593 BLU DOT
L594 BLU DOT
L595 BLU DOT
L596 BLU DOT
L597 BLU DOT
L598 BLU DOT
L599 BLU DOT
L600 BLU DOT
L601 BLU DOT
L602 BLU DOT
L603 BLU DOT
L604 BLU DOT
L605 BLU DOT
L606 BLU DOT
L607 BLU DOT
L608 BLU DOT
L609 BLU DOT
L610 BLU DOT
L611 BLU DOT
L612 BLU DOT
L613 BLU DOT
L614 BLU DOT
L615 BLU DOT
L616 BLU DOT
L617 BLU DOT
L618 BLU DOT
L619 BLU DOT
L620 BLU DOT
L621 BLU DOT
L622 BLU DOT
L623 BLU DOT
L624 BLU DOT
L625 BLU DOT
L626 BLU DOT
L627 BLU DOT
L628 BLU DOT
L629 BLU DOT
L630 BLU DOT
L631 BLU DOT
L632 BLU DOT
L633 BLU DOT
L634 BLU DOT
L635 BLU DOT
L636 BLU DOT
L637 BLU DOT
L638 BLU DOT
L639 BLU DOT
L640 BLU DOT
L641 BLU DOT
L642 BLU DOT
L643 BLU DOT
L644 BLU DOT
L645 BLU DOT
L646 BLU DOT
L647 BLU DOT
L648 BLU DOT
L649 BLU DOT
L650 BLU DOT
L651 BLU DOT
L652 BLU DOT
L653 BLU DOT
L654 BLU DOT
L655 BLU DOT
L656 BLU DOT
L657 BLU DOT
L658 BLU DOT
L659 BLU DOT
L660 BLU DOT
L661 BLU DOT
L662 BLU DOT
L663 BLU DOT
L664 BLU DOT
L665 BLU DOT
L666 BLU DOT
L667 BLU DOT
L668 BLU DOT
L669 BLU DOT
L670 BLU DOT
L671 BLU DOT
L672 BLU DOT
L673 BLU DOT
L674 BLU DOT
L675 BLU DOT
L676 BLU DOT
L677 BLU DOT
L678 BLU DOT
L679 BLU DOT
L680 BLU DOT
L681 BLU DOT
L682 BLU DOT
L683 BLU DOT
L684 BLU DOT
L685 BLU DOT
L686 BLU DOT
L687 BLU DOT
L688 BLU DOT
L689 BLU DOT
L690 BLU DOT
L691 BLU DOT
L692 BLU DOT
L693 BLU DOT
L694 BLU DOT
L695 BLU DOT
L696 BLU DOT
L697 BLU DOT
L698 BLU DOT
L699 BLU DOT
L700 BLU DOT
L701 BLU DOT
L702 BLU DOT
L703 BLU DOT
L704 BLU DOT
L705 BLU DOT
L706 BLU DOT
L707 BLU DOT
L708 BLU DOT
L709 BLU DOT
L710 BLU DOT
L711 BLU DOT
L712 BLU DOT
L713 BLU DOT
L714 BLU DOT
L715 BLU DOT
L716 BLU DOT
L717 BLU DOT
L718 BLU DOT
L719 BLU DOT
L720 BLU DOT
L721 BLU DOT
L722 BLU DOT
L723 BLU DOT
L724 BLU DOT
L725 BLU DOT
L726 BLU DOT
L727 BLU DOT
L728 BLU DOT
L729 BLU DOT
L730 BLU DOT
L731 BLU DOT
L732 BLU DOT
L733 BLU DOT
L734 BLU DOT
L735 BLU DOT
L736 BLU DOT
L737 BLU DOT
L738 BLU DOT
L739 BLU DOT
L740 BLU DOT
L741 BLU DOT
L742 BLU DOT
L743 BLU DOT
L744 BLU DOT
L745 BLU DOT
L746 BLU DOT
L747 BLU DOT
L748 BLU DOT
L749 BLU DOT
L750 BLU DOT
L751 BLU DOT
L752 BLU DOT
L753 BLU DOT
L754 BLU DOT
L755 BLU DOT
L756 BLU DOT
L757 BLU DOT
L758 BLU DOT
L759 BLU DOT
L760 BLU DOT
L761 BLU DOT
L762 BLU DOT
L763 BLU DOT
L764 BLU DOT
L765 BLU DOT
L766 BLU DOT
L767 BLU DOT
L768 BLU DOT
L769 BLU DOT
L770 BLU DOT
L771 BLU DOT
L772 BLU DOT
L773 BLU DOT
L774 BLU DOT
L775 BLU DOT
L776 BLU DOT
L777 BLU DOT
L778 BLU DOT
L779 BLU DOT
L780 BLU DOT
L781 BLU DOT
L782 BLU DOT
L783 BLU DOT
L784 BLU DOT
L785 BLU DOT
L786 BLU DOT
L787 BLU DOT
L788 BLU DOT
L789 BLU DOT
L790 BLU DOT
L791 BLU DOT
L792 BLU DOT
L793 BLU DOT
L794 BLU DOT
L795 BLU DOT
L796 BLU DOT
L797 BLU DOT
L798 BLU DOT
L799 BLU DOT
L800 BLU DOT
L801 BLU DOT
L802 BLU DOT
L803 BLU DOT
L804 BLU DOT
L805 BLU DOT
L806 BLU DOT
L807 BLU DOT
L808 BLU DOT
L809 BLU DOT
L810 BLU DOT
L811 BLU DOT
L812 BLU DOT
L813 BLU DOT
L814 BLU DOT
L815 BLU DOT
L816 BLU DOT
L817 BLU DOT
L818 BLU DOT
L819 BLU DOT
L820 BLU DOT
L821 BLU DOT
L822 BLU DOT
L823 BLU DOT
L824 BLU DOT
L825 BLU DOT
L826 BLU DOT
L827 BLU DOT
L828 BLU DOT
L829 BLU DOT
L830 BLU DOT
L831 BLU DOT
L832 BLU DOT
L833 BLU DOT
L834 BLU DOT
L835 BLU DOT
L836 BLU DOT
L837 BLU DOT
L838 BLU DOT
L839 BLU DOT
L840 BLU DOT
L841 BLU DOT
L842 BLU DOT
L843 BLU DOT
L844 BLU DOT
L845 BLU DOT
L846 BLU DOT
L847 BLU DOT
L848 BLU DOT
L849 BLU DOT
L850 BLU DOT
L851 BLU DOT
L852 BLU DOT
L853 BLU DOT
L854 BLU DOT
L855 BLU DOT
L856 BLU DOT
L857 BLU DOT
L858 BLU DOT
L859 BLU DOT
L860 BLU DOT
L861 BLU DOT
L862 BLU DOT
L863 BLU DOT
L864 BLU DOT
L865 BLU DOT
L866 BLU DOT
L867 BLU DOT
L868 BLU DOT
L869 BLU DOT
L870 BLU DOT
L871 BLU DOT
L872 BLU DOT
L873 BLU DOT
L874 BLU DOT
L875 BLU DOT
L876 BLU DOT
L877 BLU DOT
L878 BLU DOT
L879 BLU DOT
L880 BLU DOT
L881 BLU DOT
L882 BLU DOT
L883 BLU DOT
L884 BLU DOT
L885 BLU DOT
L886 BLU DOT
L887 BLU DOT
L888 BLU DOT
L889 BLU DOT
L890 BLU DOT
L891 BLU DOT
L892 BLU DOT
L893 BLU DOT
L894 BLU DOT
L895 BLU DOT
L896 BLU DOT
L897 BLU DOT
L898 BLU DOT
L899 BLU DOT
L900 BLU DOT
L901 BLU DOT
L902 BLU DOT
L903 BLU DOT
L904 BLU DOT
L905 BLU DOT
L906 BLU DOT
L907 BLU DOT
L908 BLU DOT
L909 BLU DOT
L910 BLU DOT
L911 BLU DOT
L912 BLU DOT
L913 BLU DOT
L914 BLU DOT
L915 BLU DOT
L916 BLU DOT
L917 BLU DOT
L918 BLU DOT
L919 BLU DOT
L920 BLU DOT
L921 BLU DOT
L922 BLU DOT
L923 BLU DOT
L924 BLU DOT
L925 BLU DOT
L926 BLU DOT
L927 BLU DOT
L928 BLU DOT
L929 BLU DOT
L930 BLU DOT
L931 BLU DOT
L932 BLU DOT
L933 BLU DOT
L934 BLU DOT
L935 BLU DOT
L936 BLU DOT
L937 BLU DOT
L938 BLU DOT
L939 BLU DOT
L940 BLU DOT
L941 BLU DOT
L942 BLU DOT
L943 BLU DOT
L944 BLU DOT
L945 BLU DOT
L946 BLU DOT
L947 BLU DOT
L948 BLU DOT
L949 BLU DOT
L950 BLU DOT
L951 BLU DOT
L952 BLU DOT
L953 BLU DOT
L954 BLU DOT
L955 BLU DOT
L956 BLU DOT
L957 BLU DOT
L958 BLU DOT
L959 BLU DOT
L960 BLU DOT
L961 BLU DOT
L962 BLU DOT
L963 BLU DOT
L964 BLU DOT
L965 BLU DOT
L966 BLU DOT
L967 BLU DOT
L968 BLU DOT
L969 BLU DOT
L970 BLU DOT
L971 BLU DOT
L972 BLU DOT
L973 BLU DOT
L974 BLU DOT
L975 BLU DOT
L976 BLU DOT
L977 BLU DOT
L978 BLU DOT
L979 BLU DOT
L980 BLU DOT
L981 BLU DOT
L982 BLU DOT
L983 BLU DOT
L984 BLU DOT
L985 BLU DOT
L986 BLU DOT
L987 BLU DOT
L988 BLU DOT
L989 BLU DOT
L990 BLU DOT
L991 BLU DOT
L992 BLU DOT
L993 BLU DOT
L994 BLU DOT
L995 BLU DOT
L996 BLU DOT
L997 BLU DOT
L998 BLU DOT
L999 BLU DOT
L1000 BLU DOT
V207 6AU6 FM DRIVER LIMITER
V208 6AL5 RATIO DET
V209A 6SN7GT 1ST AUDIO AMP
V209B 6SN7GT 1ST AUDIO AMP
V210 25L6GT AUDIO OUTPUT
SPKR RECEPT (TOP VIEW)
SPKR PLUG (PIN VIEW)
VOLUME CONT SHELL
TONE
VOLUME MEG R239B
SPKR CONNECTIONS
T206
T205
T208
T209
T210
T211
T212
T213
T214
T215
T216
T217
T218
T219
T220
T221
T222
T223
T224
T225
T226
T227
T228
T229
T230
T231
T232
T233
T234
T235
T236
T237
T238
T239
T240
T241
T242
T243
T244
T245
T246
T247
T248
T249
T250
T251
T252
T253
T254
T255
T256
T257
T258
T259
T260
T261
T262
T263
T264
T265
T266
T267
T268
T269
T270
T271
T272
T273
T274
T275
T276
T277
T278
T279
T280
T281
T282
T283
T284
T285
T286
T287
T288
T289
T290
T291
T292
T293
T294
T295
T296
T297
T298
T299
T300
T301
T302
T303
T304
T305
T306
T307
T308
T309
T310
T311
T312
T313
T314
T315
T316
T317
T318
T319
T320
T321
T322
T323
T324
T325
T326
T327
T328
T329
T330
T331
T332
T333
T334
T335
T336
T337
T338
T339
T340
T341
T342
T343
T344
T345
T346
T347
T348
T349
T350
T351
T352
T353
T354
T355
T356
T357
T358
T359
T360
T361
T362
T363
T364
T365
T366
T367
T368
T369
T370
T371
T372
T373
T374
T375
T376
T377
T378
T379
T380
T381
T382
T383
T384
T385
T386
T387
T388
T389
T390
T391
T392
T393
T394
T395
T396
T397
T398
T399
T400
T401
T402
T403
T404
T405
T406
T407
T408
T409
T410
T411
T412
T413
T414
T415
T416
T417
T418
T419
T420
T421
T422
T423
T424
T425
T426
T427
T428
T429
T430
T431
T432
T433
T434
T435
T436
T437
T438
T439
T440
T441
T442
T443
T444
T445
T446
T447
T448
T449
T450
T451
T452
T453
T454
T455
T456
T457
T458
T459
T460
T461
T462
T463
T464
T465
T466
T467
T468
T469
T470
T471
T472
T473
T474
T475
T476
T477
T478
T479
T480
T481
T482
T483
T484
T485
T486
T487
T488
T489
T490
T491
T492
T493
T494
T495
T496
T497
T498
T499
T500
T501
T502
T503
T504
T505
T506
T507
T508
T509
T510
T511
T512
T513
T514
T515
T516
T517
T518
T519
T520
T521
T522
T523
T524
T525
T526
T527
T528
T529
T530
T531
T532
T533
T534
T535
T536
T537
T538
T539
T540
T541
T542
T543
T544
T545
T546
T547
T548
T549
T550
T551
T552
T553
T554
T555
T556
T557
T558
T559
T560
T561
T562
T563
T564
T565
T566
T567
T568
T569
T570
T571
T572
T573
T574
T575
T576
T577
T578
T579
T580
T581
T582
T583
T584
T585
T586
T587
T588
T589
T590
T591
T592
T593
T594
T595
T596
T597
T598
T599
T600
T601
T602
T603
T604
T605
T606
T607
T608
T609
T610
T611
T612
T613
T614
T615
T616
T617
T618
T619
T620
T621
T622
T623
T624
T625
T626
T627
T628
T629
T630
T631
T632
T633
T634
T635
T636
T637
T638
T639
T640
T641
T642
T643
T644
T645
T646
T647
T648
T649
T650
T651
T652
T653
T654
T655
T656
T657
T658
T659
T660
T661
T662
T663
T664
T665
T666
T667
T668
T669
T670
T671
T672
T673
T674
T675
T676
T677
T678
T679
T680
T681
T682
T683
T684
T685
T686
T687
T688
T689
T690
T691
T692
T693
T694
T695
T696
T697
T698
T699
T700
T701
T702
T703
T704
T705
T706
T707
T708
T709
T710
T711
T712
T713
T714
T715
T716
T717
T718
T719
T720
T721
T722
T723
T724
T725
T726
T727
T728
T729
T730
T731
T732
T733
T734
T735
T736
T737
T738
T739
T740
T741
T742
T743
T744
T745
T746
T747
T748
T749
T750
T751
T752
T753
T754
T755
T756
T757
T758
T759
T760
T761
T762
T763
T764
T765
T766
T767
T768
T769
T770
T771
T772
T773
T774
T775
T776
T777
T778
T779
T780
T781
T782
T783
T784
T785
T786
T787
T788
T789
T790
T791
T792
T793
T794
T795
T796
T797
T798
T799
T800
T801
T802
T803
T804
T805
T806
T807
T808
T809
T810
T811
T812
T813
T814
T815
T816
T817
T818
T819
T820
T821
T822
T823
T824
T825
T826
T827
T828
T829
T830
T831
T832
T833
T834
T835
T836
T837
T838
T839
T840
T841
T842
T843
T844
T845
T846
T847
T848
T849
T850
T851
T852
T853
T854
T855
T856
T857
T858
T859
T860
T861
T862
T863
T864
T865
T866
T867
T868
T869
T870
T871
T872
T873
T874
T875
T876
T877
T878
T879
T880
T881
T882
T883
T884
T885
T886
T887
T888
T889
T890
T891
T892
T893
T894
T895
T896
T897
T898
T899
T900
T901
T902
T903
T904
T905
T906
T907
T908
T909
T910
T911
T912
T913
T914
T915
T916
T917
T918
T919
T920
T921
T922
T923
T924
T925
T926
T927
T928
T929
T930
T931
T932
T933
T934
T935
T936
T937
T938
T939
T940
T941
T942
T943
T944
T945
T946
T947
T948
T949
T950
T951
T952
T953
T954
T955
T956
T957
T958
T959
T960
T961
T962
T963
T964
T965
T966
T967
T968
T969
T970
T971
T972
T973
T974
T975
T976
T977
T978
T979
T980
T981
T982
T983
T984
T985
T986
T987
T988
T989
T990
T991
T992
T993
T994
T995
T996
T997
T998
T999
T1000
V211 12SN7GT 1ST & 2ND CLIPPERS
V212A 12BH7 VERT BLOCK OSC
V212B 12BH7 VERT OUTPUT
V213 6SN7GT HORIZ OSC
V214 25BQ6GT DAMPING DIODE
V215 12AX4GT DAMPING DIODE
V216 1B3GT HV RECT
V217 17TP4 (T19-5641) 17HP4A (T19-3251)
V218 6SN7GT PHASE DET
V219 6SN7GT HORIZ OSC
V220 6SN7GT HORIZ OUTPUT & HV GEN
V221 6SN7GT HORIZ OSC
V222 6SN7GT HORIZ OSC
V223 6SN7GT HORIZ OSC
V224 6SN7GT HORIZ OSC
V225 6SN7GT HORIZ OSC
V226 6SN7GT HORIZ OSC
V227 6SN7GT HORIZ OSC
V228 6SN7GT HORIZ OSC
V229 6SN7GT HORIZ OSC
V230 6SN7GT HORIZ OSC
V231 6SN7GT HORIZ OSC
V232 6SN7GT HORIZ OSC
V233 6SN7GT HORIZ OSC
V234 6SN7GT HORIZ OSC
V235 6SN7GT HORIZ OSC
V236 6SN7GT HORIZ OSC
V237 6SN7GT HORIZ OSC
V238 6SN7GT HORIZ OSC
V239 6SN7GT HORIZ OSC
V240 6SN7GT HORIZ OSC
V241 6SN7GT HORIZ OSC
V242 6SN7GT HORIZ OSC
V243 6SN7GT HORIZ OSC
V244 6SN7GT HORIZ OSC
V245 6SN7GT HORIZ OSC
V246 6SN7GT HORIZ OSC
V247 6SN7GT HORIZ OSC
V248 6SN7GT HORIZ OSC
V249 6SN7GT HORIZ OSC
V250 6SN7GT HORIZ OSC
V251 6SN7GT HORIZ OSC
V252 6SN7GT HORIZ OSC
V253 6SN7GT HORIZ OSC
V254 6SN7GT HORIZ OSC
V255 6SN7GT HORIZ OSC
V256 6SN7GT HORIZ OSC
V257 6SN7GT HORIZ OSC
V258 6SN7GT HORIZ OSC
V259 6SN7GT HORIZ OSC
V260 6SN7GT HORIZ OSC
V261 6SN7GT HORIZ OSC
V262 6SN7GT HORIZ OSC
V263 6SN7GT HORIZ OSC
V264 6SN7GT HORIZ OSC
V265 6SN7GT HORIZ OSC
V266 6SN7GT HORIZ OSC
V267 6SN7GT HORIZ OSC
V268 6SN7GT HORIZ OSC
V269 6SN7GT HORIZ OSC
V270 6SN7GT HORIZ OSC
V271 6SN7GT HORIZ OSC
V272 6SN7GT HORIZ OSC
V273 6SN7GT HORIZ OSC
V274 6SN7GT HORIZ OSC
V275 6SN7GT HORIZ OSC
V276 6SN7GT HORIZ OSC
V277 6SN7GT HORIZ OSC
V278 6SN7GT HORIZ OSC
V279 6SN7GT HORIZ OSC
V280 6SN7GT HORIZ OSC
V281 6SN7GT HORIZ OSC
V282 6SN7GT HORIZ OSC
V283 6SN7GT HORIZ OSC
V284 6SN7GT HORIZ OSC
V285 6SN7GT HORIZ OSC
V286 6SN7GT HORIZ OSC
V287 6SN7GT HORIZ OSC
V288 6SN7GT HORIZ OSC
V289 6SN7GT HORIZ OSC
V290 6SN7GT HORIZ OSC
V291 6SN7GT HORIZ OSC
V292 6SN7GT HORIZ OSC
V293 6SN7GT HORIZ OSC
V294 6SN7GT HORIZ OSC
V295 6SN7GT HORIZ OSC
V296 6SN7GT HORIZ OSC
V297 6SN7GT HORIZ OSC
V298 6SN7GT HORIZ OSC
V299 6SN7GT HORIZ OSC
V300 6SN7GT HORIZ OSC
V301 6SN7GT HORIZ OSC
V302 6SN7GT HORIZ OSC
V303 6SN7GT HORIZ OSC
V304 6SN7GT HORIZ OSC
V305 6SN7GT HORIZ OSC
V306 6SN7GT HORIZ OSC
V307 6SN7GT HORIZ OSC
V308 6SN7GT HORIZ OSC
V309 6SN7GT HORIZ OSC
V310 6SN7GT HORIZ OSC
V311 6SN7GT HORIZ OSC
V312 6SN7GT HORIZ OSC
V313 6SN7GT HORIZ OSC
V314 6SN7GT HORIZ OSC
V315 6SN7GT HORIZ OSC
V316 6SN7GT HORIZ OSC
V317 6SN7GT HORIZ OSC
V318 6SN7GT HORIZ OSC
V319 6SN7GT HORIZ OSC
V320 6SN7GT HORIZ OSC
V321 6SN7GT HORIZ OSC
V322 6SN7GT HORIZ OSC
V323 6SN7GT HORIZ OSC
V324 6SN7GT HORIZ OSC
V325 6SN7GT HORIZ OSC
V326 6SN7GT HORIZ OSC
V327 6SN7GT HORIZ OSC
V328 6SN7GT HORIZ OSC
V329 6SN7GT HORIZ OSC
V330 6SN7GT HORIZ OSC
V331 6SN7GT HORIZ OSC
V332 6SN7GT HORIZ OSC
V333 6SN7GT HORIZ OSC
V334 6SN7GT HORIZ OSC
V335 6SN7GT HORIZ OSC
V336 6SN7GT HORIZ OSC
V337 6SN7GT HORIZ OSC
V338 6SN7GT HORIZ OSC
V339 6SN7GT HORIZ OSC
V340 6SN7GT HORIZ OSC
V341 6SN7GT HORIZ OSC
V342 6SN7GT HORIZ OSC
V343 6SN7GT HORIZ OSC
V344 6SN7GT HORIZ OSC
V345 6SN7GT HORIZ OSC
V346 6SN7GT HORIZ OSC
V347 6SN7GT HORIZ OSC
V348 6SN7GT HORIZ OSC
V349 6SN7GT HORIZ OSC
V350 6SN7GT HORIZ OSC
V351 6SN7GT HORIZ OSC
V352 6SN7GT HORIZ OSC
V353 6SN7GT HORIZ OSC
V354 6SN7GT HORIZ OSC
V355 6SN7GT HORIZ OSC
V356 6SN7GT HORIZ OSC
V357 6SN7GT HORIZ OSC
V358 6SN7GT HORIZ OSC
V359 6SN7GT HORIZ OSC
V360 6SN7GT HORIZ OSC
V361 6SN7GT HORIZ OSC
V362 6SN7GT HORIZ OSC
V363 6SN7GT HORIZ OSC
V364 6SN7GT HORIZ OSC
V365 6SN7GT HORIZ OSC
V366 6SN7GT HORIZ OSC
V367 6SN7GT HORIZ OSC
V368 6SN7GT HORIZ OSC
V369 6SN7GT HORIZ OSC
V370 6SN7GT HORIZ OSC
V371 6SN7GT HORIZ OSC
V372 6SN7GT HORIZ OSC
V373 6SN7GT HORIZ OSC
V374 6SN7GT HORIZ OSC
V375 6SN7GT HORIZ OSC
V376 6SN7GT HORIZ OSC
V377 6SN7GT HORIZ OSC
V378 6SN7GT HORIZ OSC
V379 6SN7GT HORIZ OSC
V380 6SN7GT HORIZ OSC
V381 6SN7GT HORIZ OSC
V382 6SN7GT HORIZ OSC
V383 6SN7GT HORIZ OSC
V384 6SN7GT HORIZ OSC
V385 6SN7GT HORIZ OSC
V386 6SN7GT HORIZ OSC
V387 6SN7GT HORIZ OSC
V388 6SN7GT HORIZ OSC
V389 6SN7GT HORIZ OSC
V390 6SN7GT HORIZ OSC
V391 6SN7GT HORIZ OSC
V392 6SN7GT HORIZ OSC
V393 6SN7GT HORIZ OSC
V394 6SN7GT HORIZ OSC
V395 6SN7GT HORIZ OSC
V396 6SN7GT HORIZ OSC
V397 6SN7GT HORIZ OSC
V398 6SN7GT HORIZ OSC
V399 6SN7GT HORIZ OSC
V400 6SN7GT HORIZ OSC
V401 6SN7GT HORIZ OSC
V402 6SN7GT HORIZ OSC
V403 6SN7GT HORIZ OSC
V404 6SN7GT HORIZ OSC
V405 6SN7GT HORIZ OSC
V406 6SN7GT HORIZ OSC
V407 6SN7GT HORIZ OSC
V408 6SN7GT HORIZ OSC
V409 6SN7GT HORIZ OSC
V410 6SN7GT HORIZ OSC
V411 6SN7GT HORIZ OSC
V412 6SN7GT HORIZ OSC
V413 6SN7GT HORIZ OSC
V414 6SN7GT HORIZ OSC
V415 6SN7GT HORIZ OSC
V416 6SN7GT HORIZ OSC
V417 6SN7GT HORIZ OSC
V418 6SN7GT HORIZ OSC
V419 6SN7GT HORIZ OSC
V420 6SN7GT HORIZ OSC
V421 6SN7GT HORIZ OSC
V422 6SN7GT HORIZ OSC
V423 6SN7GT HORIZ OSC
V424 6SN7GT HORIZ OSC
V425 6SN7GT HORIZ OSC
V426 6SN7GT HORIZ OSC
V427 6SN7GT HORIZ OSC
V428 6SN7GT HORIZ OSC
V429 6SN7GT HORIZ OSC
V430 6SN7GT HORIZ OSC
V431 6SN7GT HORIZ OSC
V432 6SN7GT HORIZ OSC
V433 6SN7GT HORIZ OSC
V434 6SN7GT HORIZ OSC
V435 6SN7GT HORIZ OSC
V436 6SN7GT HORIZ OSC
V437 6SN7GT HORIZ OSC
V438 6SN7GT HORIZ OSC
V439 6SN7GT HORIZ OSC
V440 6SN7GT HORIZ OSC
V441 6SN7GT HORIZ OSC
V442

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.



The Cooperation of the Manufacturer of This Receiver Makes it Possible to Bring You This Service.

STROMBERG CARLSON
SERIES 417

PRELIMINARY DATA
The data contained in this folder is published in advance of regular PHOTOFACT Coverage

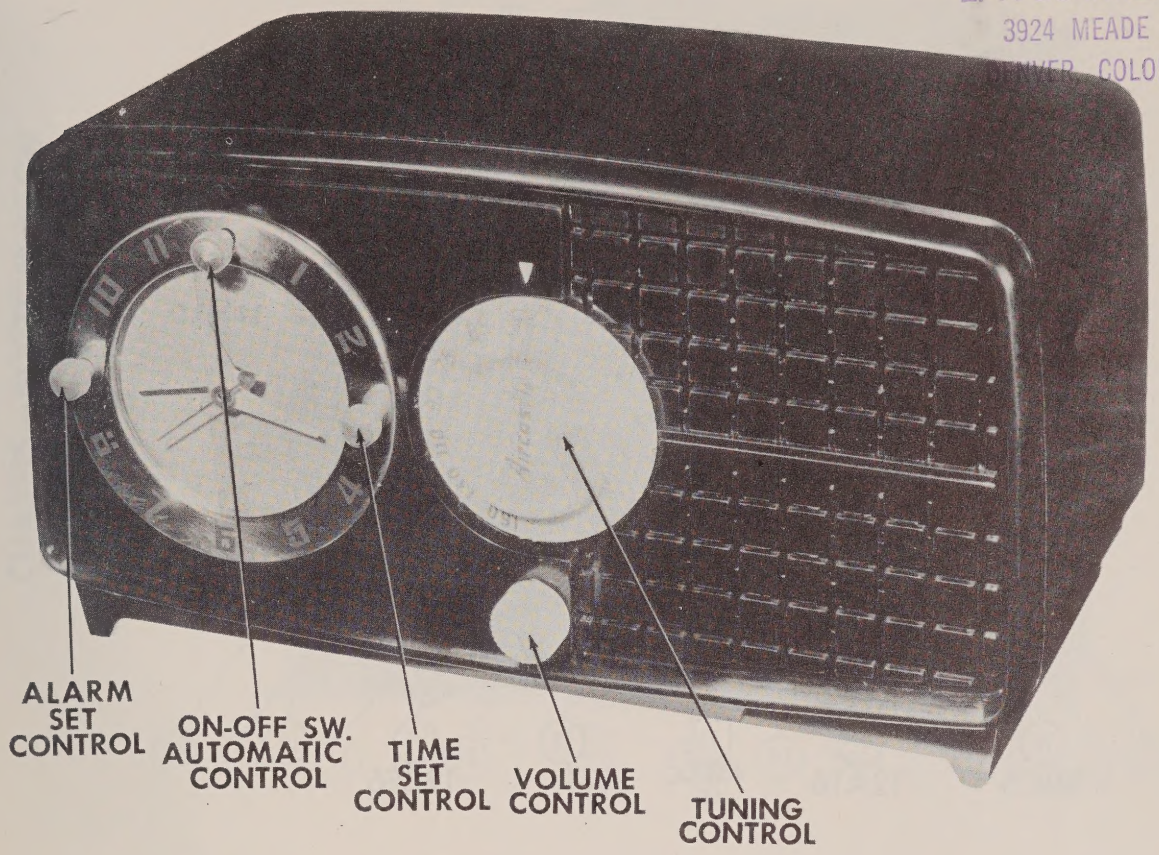
SET 167 FOLDER 1A

© Howard W. Sams & Co., Inc. 1952

AIRCASTLE
MODELS 559.511, 659.513

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

AIRCASTLE
MODELS 559.511, 659.513



AIRCASTLE
MODELS 559.511, 659.513

AIRCASTLE MODEL 659.511

TRADE NAME	Aircastle Model 659.511, 659.513
SUPPLIER	Spiegel, Inc., 1061 W. 35th St., Chicago, 9, Ill.
TYPE SET	AC Operated Superheterodyne Receiver with Electric Clock
TUBES(FOUR)	Types 12BE6 Conv., 12AT6 or 12AV6 Det.-AVC-AF Amp., 50C5 Audio Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING .23 Amp. @117 volts AC
TUNING RANGE—BROADCAST	520-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Use isolation transformer, if available. If not, connect a.1MFD capacitor in series with low side of signal generator and B- . Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to Pin 7, (grid) 12BE6, (V1). Low side to B-	455KC (400∿ Mod.)	Tuning gang fully open	Across voice coil	A1, A2	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	100MMF	High side to Ant. Term. on ant. coil. (Remove Hank) Low side to B- .	1650KC	"	"	A3	"
3.	"	"	1400KC	Tune for max. output.	"	A4	"

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		AIRCASTLE PART No.	STANDARD REPLACEMENT		
V1	Converter	12BE6	12BE6	7CH	
V2A	Det.-AVC-AF Amp.	12AT6	12AT6	7BT	
B	Det.-AVC-AF Amp.	12AV6	12AV6	7BT	
V3	Audio Output	50C5	50C5	7CV	
V4	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	AIRCASTLE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	50	150	32-2	PRS150/50-30		EDL-5315		TVA-2450	Filter (Green)
B	30	150							Filter (Red)
C2	100		31-1	S1100	D6-101	TM5T1	GP1K-101	5GA-T1	Diode RF Filter
C3	.05	400	30-5	P488-05	DF-503	PTE4S5		4TM-S5	AVC Filter
C4	.002	600	30-12	P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	Audio Coupling
C5	.01	600	30-1	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Audio Coupling
C6	.01	600	30-1	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Audio Output Plate
C7	.05	400	30-6	P488-05		PTE4S5		4TM-S5	Line Filter
C8	.05	400	30-6	P488-05		PTE4S5		4TM-S5	Line Isolation

CONTROLS

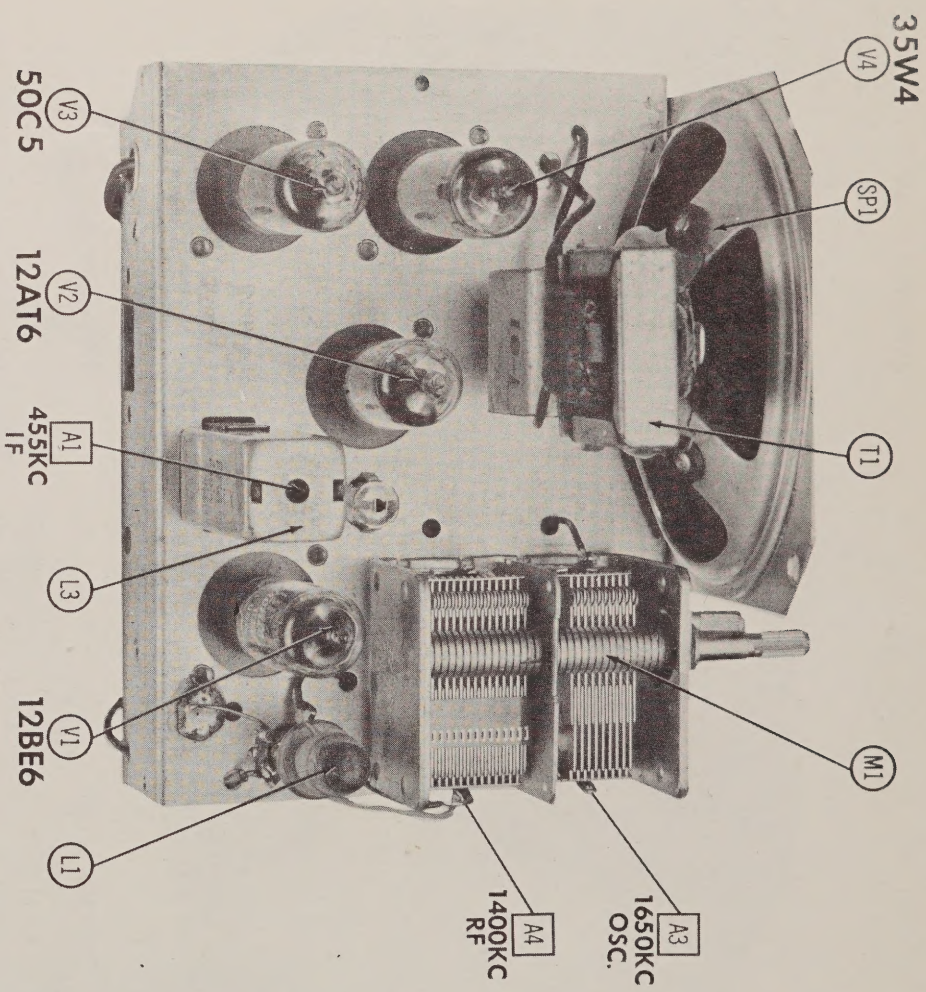
ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	AIR CASTLE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	2Meg	½	25-1	Q13-139	AG-66-Z	AN-76	Volume Control
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Attach to R1A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIRCASTLE PART No.	IRC PART No.	
R2	22KΩ	½	20-5		Osc. Grid
R3	4.7Meg	½	20-13	BTS-4.7Meg	Diode Filter
R4	10Meg	½	20-14	BTS-10Meg	AF Amp. Grid
R5	470KΩ	½	20-9	BTS-470K	AF Amp. Plate
R6	330KΩ	½	20-8	BTS-330K	Output Grid
R7	2700Ω	1		BTA-2700	Filter - See Note 1
R8	22Ω	1	21-1		Filament Dropping
R9	22Ω	1	21-1		Series Filament
R10	22Ω	½	20-1		Rect. Ballast

Note 1. Some Models use a 2200Ω Resistor in this application

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRCASTLE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	2KΩ	3.3Ω	130Ω	.5Ω	Part of 10-1	A-3332 ①	A-3025 ①		① Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	AIRCASTLE PART No.	VIKING PART No.	QUAM PART No.	
SP1A	P.M.	3.3Ω	10-1	4J4	4A07	
	CONE DIA.	V. C. DIA.				
SP1B	4"	9/16"				

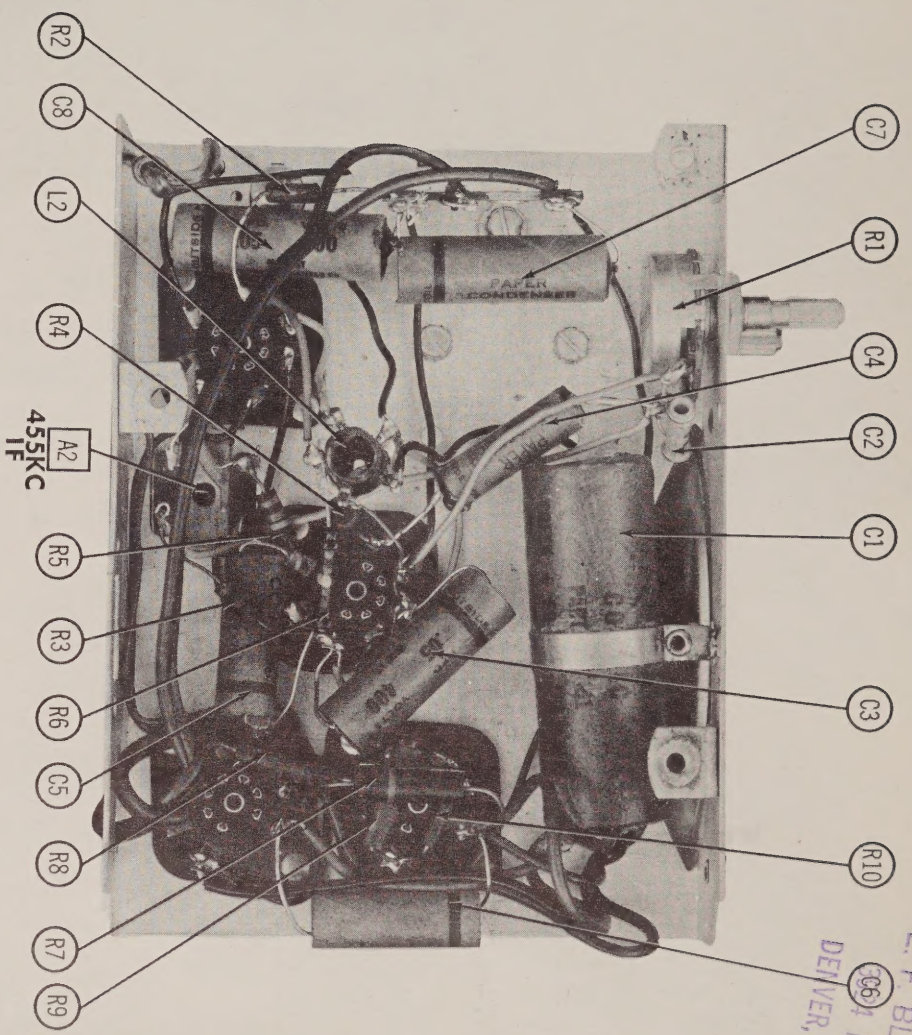
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	AIRCASTLE PART No.	MERIT PART No.	
L1	Ant. Coil	55Ω	2.5Ω	61-2		
L2	Osc. Coil	.8Ω	8.6Ω	61-1		
L3	IF Trans.	19Ω	20Ω	62-1		

MISCELLANEOUS

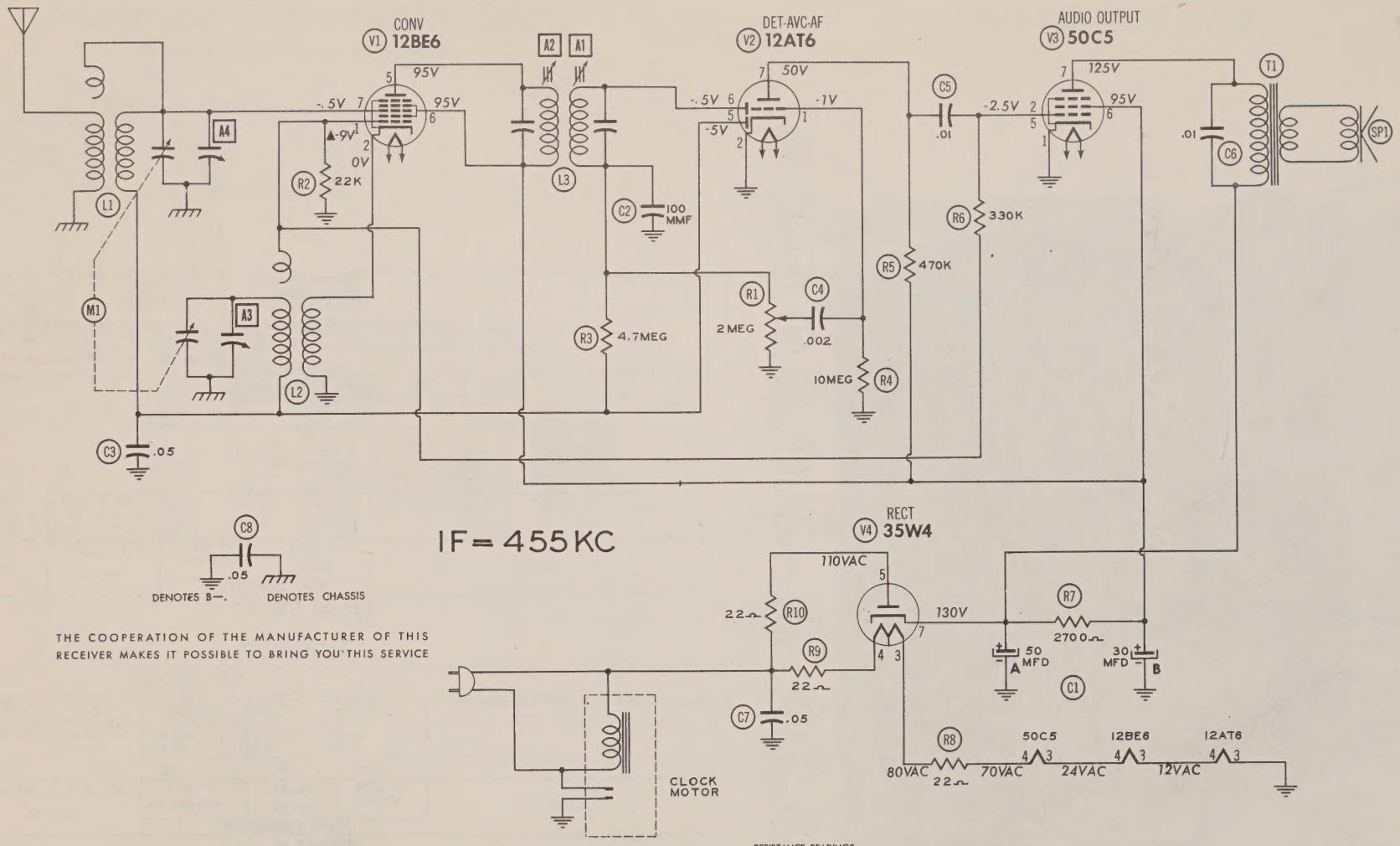
ITEM No.	PART NAME	AIRCASTLE PART No.	NOTES
M1	2 Gang Var. Cap	35-1	(27-479MMF, 27-197MMF)
	Clock	13-1	
	Knob	50-4	Volume (Small)
	Knob	50-3	Tuning (Large)

CHASSIS—BOTTOM VIEW



PROPERTY OF
L. F. BLANKENSHIP
1004 MEADE ST.
DENVER, COLORADO

AIRCASTLE MODEL 659.511



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.8Ω	12Ω	24Ω	†2.7KΩ	†2.7KΩ	6.7Meg
V 2	12AT6	10Meg	0Ω	0Ω	12Ω	6.7Meg	2Meg	†470KΩ
V 3	50C5	0Ω	350KΩ	24Ω	74Ω	350KΩ	†2.7KΩ	†130Ω
V 4	35W4	134Ω	INF	96Ω	121Ω	165Ω	113Ω	35KΩ

† MEASURED FROM PIN 7 OF V4
▲ TAKEN WITH VACUUM TUBE VOLTMETER.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1952

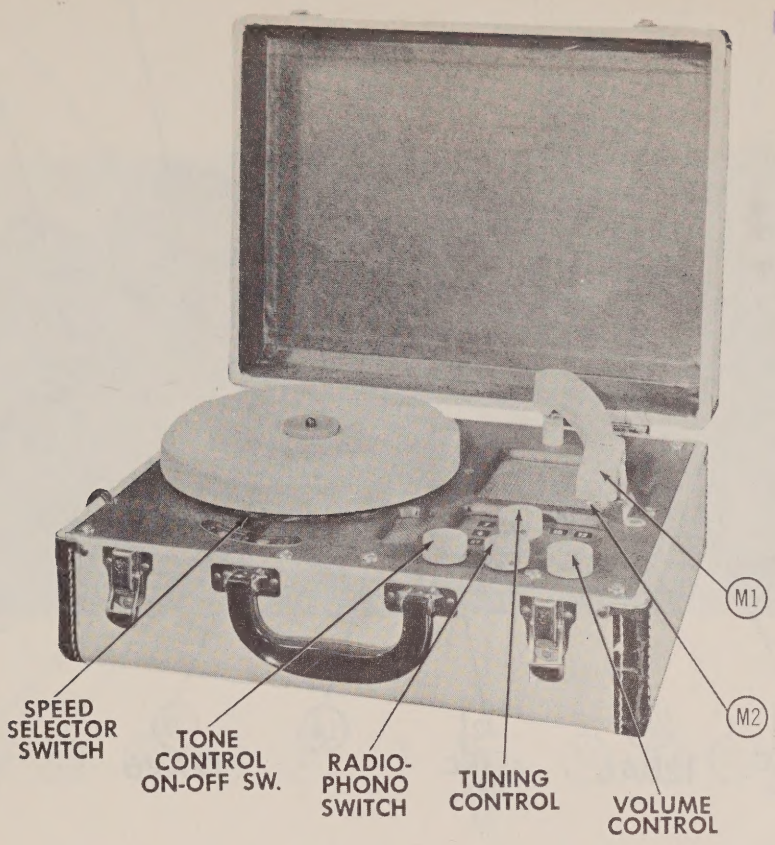
167-2

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

AIRLINE MODELS 05GHM-934A, 15GHM-934A, 94GHM-934A

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

AIRLINE MODELS 05GHM-934A, 15GHM-934A, 94GHM-934A



AIRLINE MODELS 05GHM-934A, 15GHM-934A, 94GHM-934A

AIRLINE MODEL 15GHM-934A

TRADE NAME	Airline Model 05GHM - 934A, 15GHM - 934A, 94GHM - 934A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Ill.
TYPE SET	AC Operated Radio - Phono Combination Superheterodyne Receiver with 3 speed Manual Record Player.
TUBES (FIVE)	Types 12BE6 Conv., 12BA6 IF Amp., 12AV6 Det.-AVC-AF Amp., 50B5 Audio Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC-60 Cycle — RATING .26 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1640KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer parallel with base of dial. Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B- . Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to Pin 7, (grid) 12BE6, (V1). Low side to B- .	455KC (400∿ Mod.)	Tuning gang fully closed.	Across voice coil.	A1, A2 A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	540KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1640KC	Tuning gang fully open	"	A6	"
4.		"	1400	Tune for max. output.	"	A7	"

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

AIRLINE
MODEL 05GHM-934A

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		AIRLINE PART No.	STANDARD REPLACEMENT		
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3	Det. AVC-AF Amp.	12AV6	12AV6	7BT	
V4	Audio Output	50B5	50B5	7BZ	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	AIRLINE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	80	150	RA32	PRS150/80-40		EDL8415		TVA-2460	Filter (Red)
B	40	150							Filter (Blue)
C2	.05	200	RA24	P288-05	DF-503	PJ2S5		2TM-S5	AVC Filter
C3	47			SI47	D6-470	5R5Q5	GP1K-470	5GA-Q47	Osc. Grid Cap
C4	100		RA28	SI100	D6-101	TM5T1	GP1K-101	5GA-T1	Diode RF Filter *
C5	100		RA28	SI100	D6-101	TM5T1	GP1K-101	5GA-T1	Diode RF Filter *
C6	.005	100	RA29	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Audio Coupling
C7	.01	200	RA30	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C8	100		RA28	SI100	D6-101	TM5T1	GP1K-101	5GA-T1	AF Amp. Plate Bypass *
C9	.01	200	RA30	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C10	.01	200	RA30	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Output Plate
C11	.1	200	RA23	P288-1	DF-104	PJ2P1		2TM-P1	Tone Comp.
C12	.05	400		P488-05		PTE4S5		4TM-S5	Line Filter †
C13	.1	200	RA23	P288-1	DF-104	PJ2P1		2TM-P1	Line Isolation ¶

* Not used in all Models
† Some Models use .1MFD in this application (Part No. RA31)
¶ Some Models use .25MFD in this application (Part No. RA25)

CONTROLS

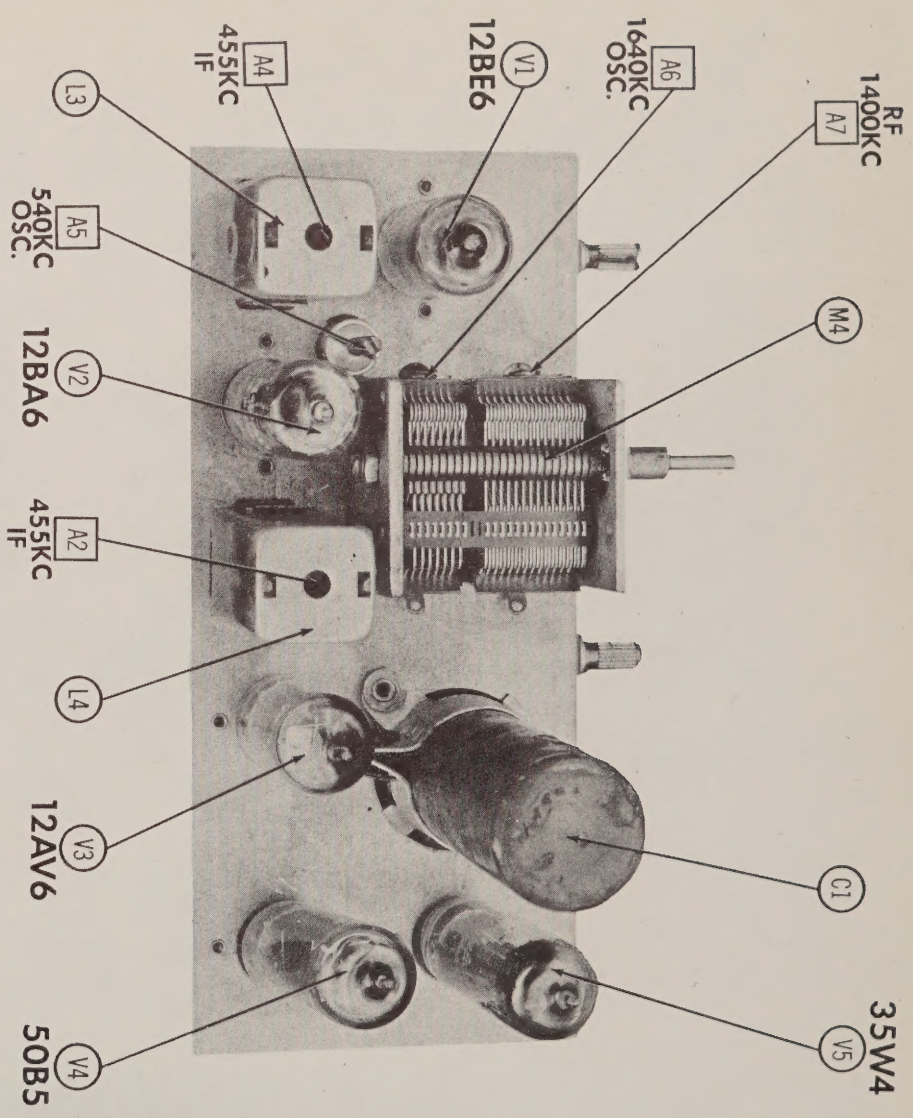
ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	2Meg	½		Q13-139	AG-66-Z	AN-76	Volume Control
B	Shaft			Not Req.	KSS-3	AK-4	Attach to R1A per instructions
R2A	25KΩ	½	RA22	Q11-120	AG-40-S	AN-26	Tone Control
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Attach to R2A per instructions
C	Switch		Not Req.	76-1	SWB	K-155	Attach to R2A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIRLINE PART No.	IRC PART No.	
R3	470KΩ	½	RA11		Antenna Isolation
R4	20KΩ	½	RA12		Osc. Grid
R5	200Ω	½	RA21		IF Amp. Cathode
R6	2.2Meg	½	RA13	BTS-2.2Meg	AVC Network
R7	50KΩ	½	RA15		Diode Filter
R8	220KΩ	½	RA16	BTS-220K	Tone Compensation
R9	5Meg	½	RA18		AF Amp. Grid
R10	100KΩ	½		BTS-100K	Tone Compensation - See Note 1
R11	470KΩ	½	RA11	BTS-470K	AF Amp. Plate
R12	470KΩ	½	RA11	BTS-470K	Output Grid
R13	150Ω	½	RA19	BTS-150	Output Cathode
R14	18Ω	½			Surge Limiter - See Note 2
R15	1000Ω	½	RA20	BTS-1000	Filter

Note 1. Some Models use a 75KΩ Resistor in this application
Note 2. Some Models use a 22Ω Resistor in this application

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRLINE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	2.3KΩ	3.4Ω	160Ω	.4Ω	Part of RA39	A-3332 ①	A-3025 ①		① Bend Mounting Tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	AIRLINE PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	P.M.	3.4Ω	RA39	ST-105 Mod. P5-X	5A1	
	CONE DIA.	V. C. DIA.				
SP1B	5"	9/16"				

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	AIRLINE PART No.	MERIT PART No.	
L1	Loop Ant.	2.2Ω				
L2	Osc. Coil	5.7Ω		RA41		Tap ⓐ .4Ω
L3	Input IF	20Ω	20Ω	RA42		
L4	Output IF	17Ω	17Ω	RA43		

PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA							REMARKS
	AIRLINE PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1		† 7-D		90ID *		16-0 * 2400	0-13	* Tone Arm † Complete tone arm & cart. assby.

ELECTRO-VOICE NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

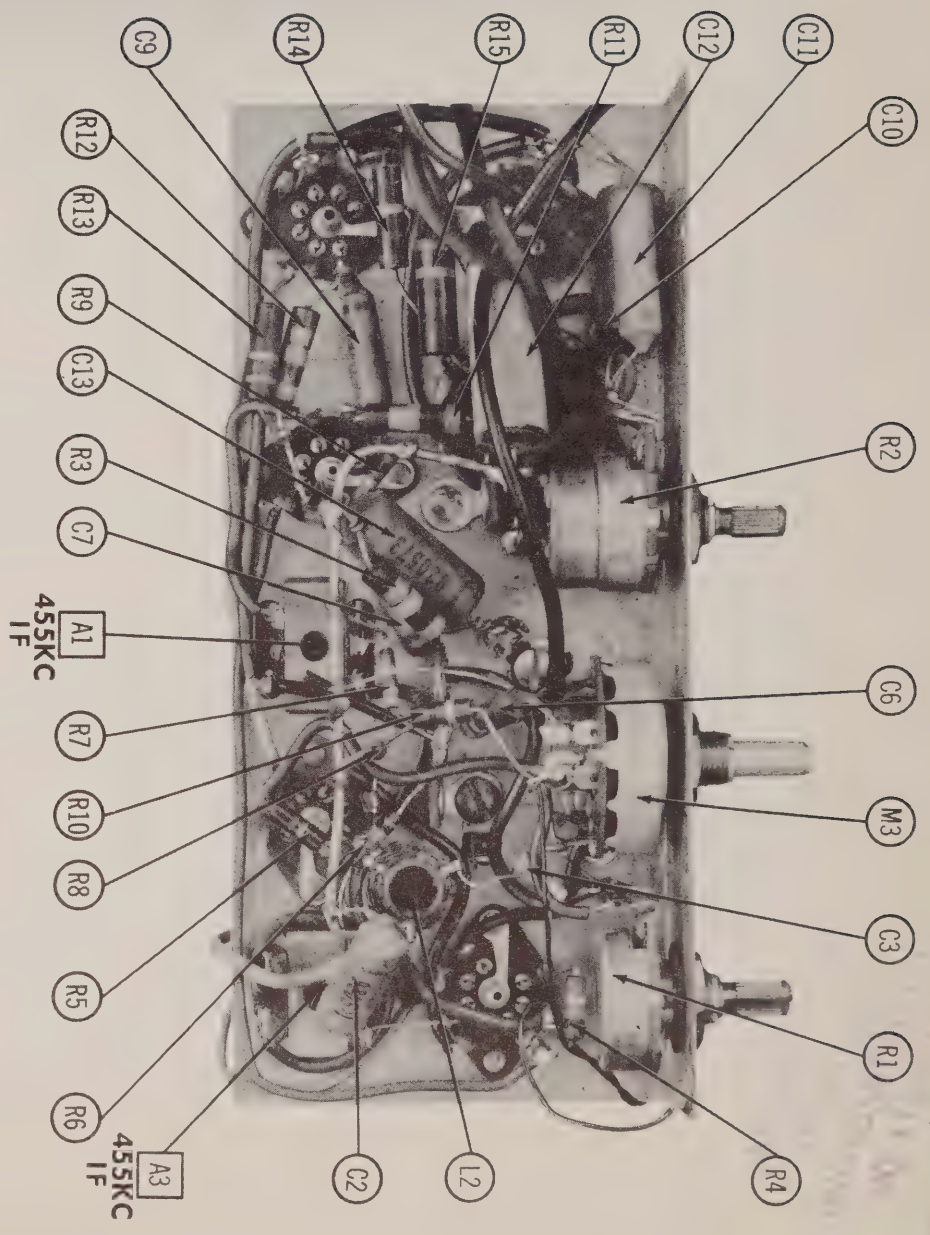
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	AIRLINE PART No.	WALCO PART No.	JENSEN PART No.	
M2		W-22TPA or W-22TPS	E-91 or E-93	

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M3	Switch	RA37	Radio - Phono
M4	2 Gang Var. Cap.	RA26	(18-382MMF, 28-172MMF)
	Cabinet	RA47	
	Pointer	RA44	
	Motor	RA40	Phono
	Knob	RA38T	Tone
	Knob	RA38V	Volume
	Knob	RA38PR	Radio - Phono
	Knob	RA38P	Plain

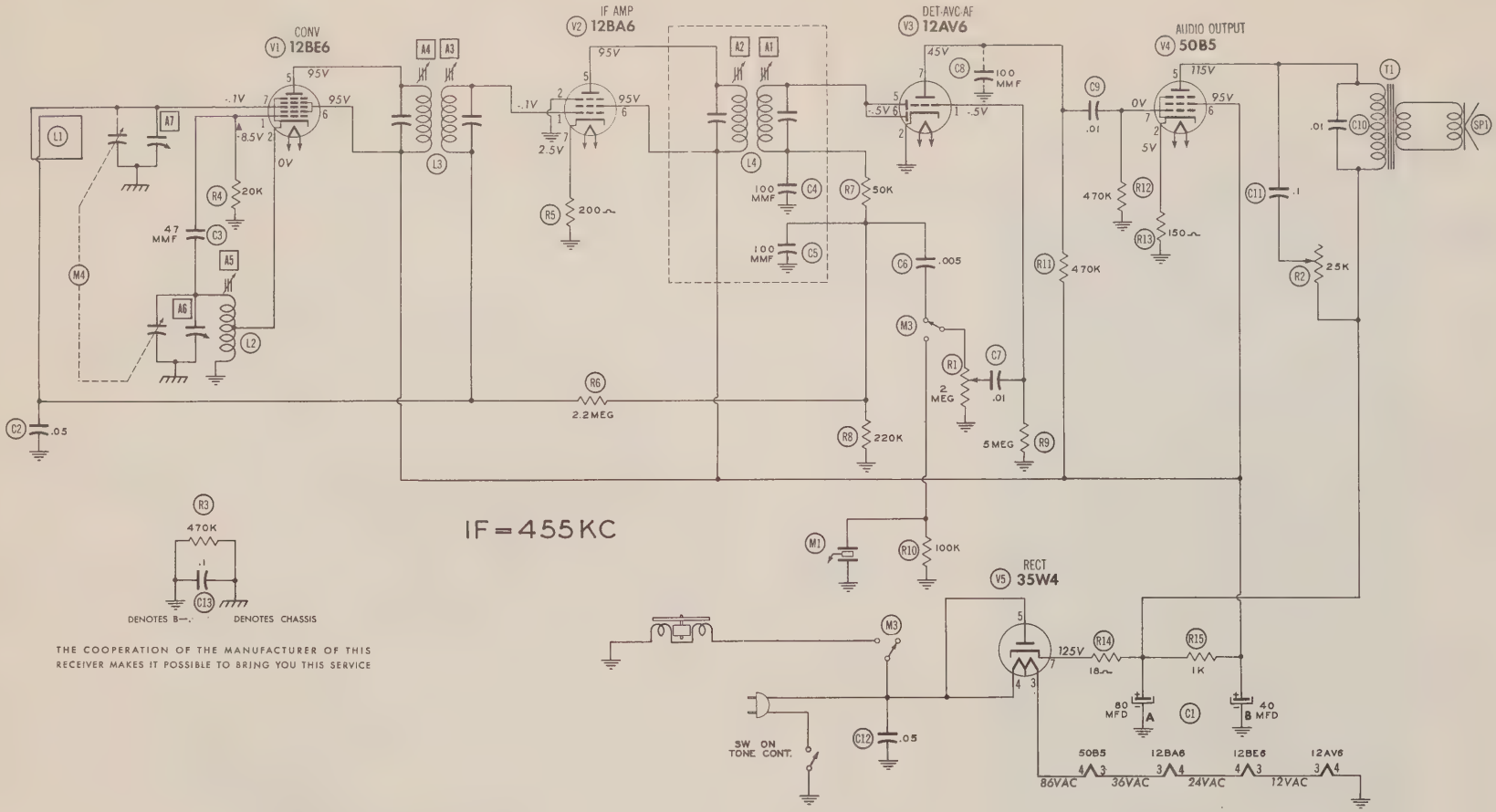
CHASSIS—BOTTOM VIEW



SET 167 FOLDER 3

AIRLINE MODEL 05GHM-934A

AIRLINE MODEL 05GHM-934A



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	20KΩ	.5Ω	12Ω	24Ω	†1KΩ	†1KΩ	2.4Meg
V 2	12BA6	2.4Meg	0Ω	36Ω	24Ω	†1KΩ	†1KΩ	200Ω
V 3	12AV6	5Meg	0Ω	12Ω	0Ω	270KΩ	270KΩ	†470KΩ
V 4	50B5	470KΩ	150Ω	36Ω	86Ω	†180Ω	†1KΩ	470KΩ
V 5	35W4	INF	†18Ω	86Ω	121Ω	121Ω	103Ω	50KΩ

ALL MEASUREMENTS TAKEN IN RADIO POSITION
† MEASURED FROM PIN 7 OF V5
▲ TAKEN WITH VACUUM TUBE VOLTMETER

A PHOTOFACT STANDARD NOTATION SCHEMATIC
©Howard W. Sams & Co., Inc. 1952

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

AIRLINE
MODEL 25GDC-994A

PROPERTY OF
L. P. BLANKENSHIP
MEADE ST.
DENVER, COLORADO

AIRLINE
MODEL 25GDC-994A

AIRLINE
MODEL 25GDC-994A

TRADE NAME	Airline Model 25GDC-994A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Ill.
TYPE SET	AC Operated Phono Amplifier With 3 Speed Automatic Record Changer
TUBES (Three)	Types 12AV6 AF Amp., 50C5 Audio Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC - 60 Cycle RATING .23 Amp. @ 117 Volts AC

FOR SERVICE INFORMATION ON RECORD CHANGER UNIT - SEE V-M MODEL 950 - PHOTOFACT SET #107 - FOLDER 13.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

AIRLINE
MODEL 25GDC-994A

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		AIRLINE PART No.	STANDARD REPLACEMENT		
V1	AF Amplifier	12AV6	12AV6	7BT	
V2	Audio Output	50C5	50C5	5BQ	
V3	Rectifier	35W4	35W4	7CV	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	AIRLINE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	40	150	MEL-4239	AFH4-28		EZ44315C		TVL-4420	Filter (Red)
B	40	150							Filter (Red)
C	20	150							Decoupling (Yellow)
D	20	25							Output Cathode (Blue)
C2	10000		CA-501	BPD-01	DD-103	TM5S1	821-01	5HK-S1	Tone Comp.
C3	5000		CA-5005	BPD-005	DD-502	TM5D5	811-005	5HK-D1	Audio Coupling
C4	.1	200	CA-21			PJ2P1		2TM-P1	Line Filter

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	AIRLINE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	2Meg	1/2	R2M	Q13-139	AM-66-Z	AN-76	Volume Control
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Attach to R1A per instructions
R2A	500KΩ	1/2	RS-500	Q13-133	AM-60-Z	BSK-60-S	Tone Control
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Attach to R2A per instructions
C	Switch		Not Req.	76-1	SW-A	Not Req.	Attach to R2A per instructions.

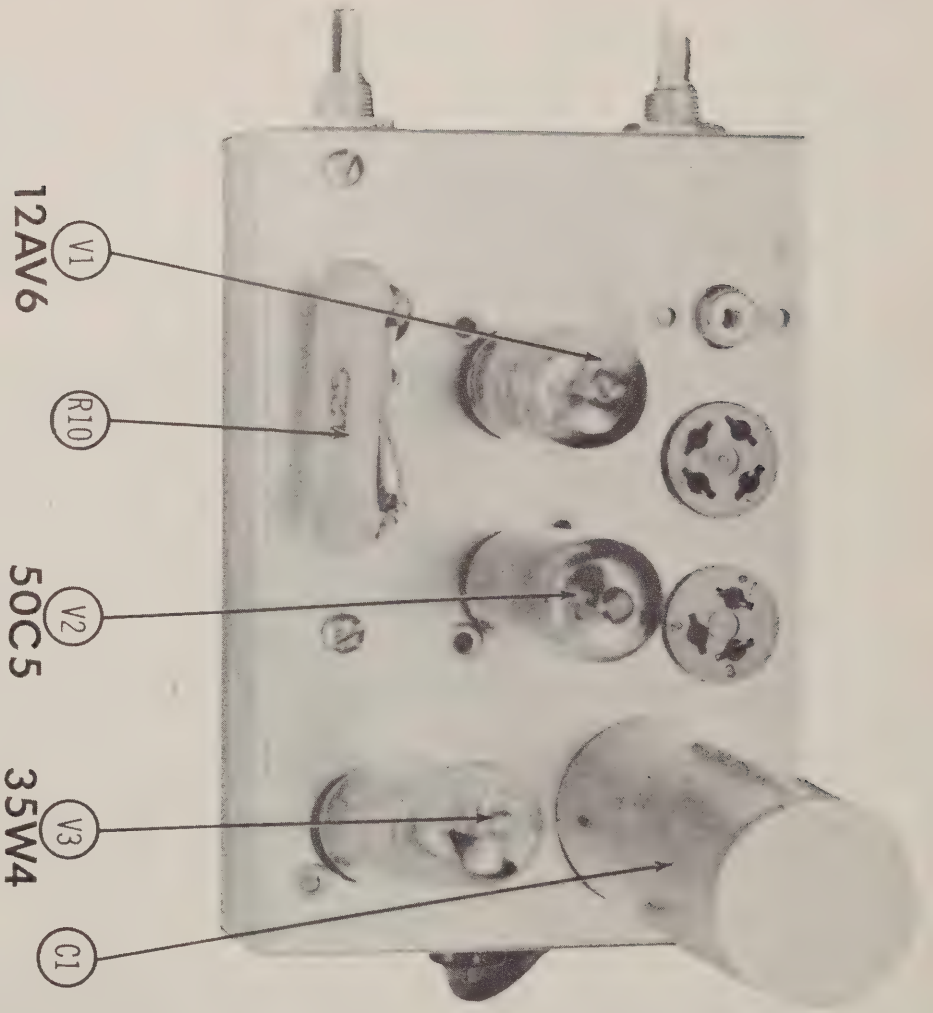
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIRLINE PART No.	IRC PART No.	
R3	47KΩ	1/2	R-470005	BTS-47K	Tone Compensation
R4	270KΩ	1/2	R2705	BTS-270K	AF Amp Grid
R5	560Ω	1/2	R565	BTS-560	AF Amp. Cathode
R6	100KΩ	1/2	R10005	BTS-100K	AF Amp. Plate
R7	100KΩ	1/2	R10005	BTS-100K	Feedback Network
R8	500KΩ	1/2	R5005		Output Grid
R9	180Ω	1/2	R1805	BTS-180	Output Cathode
R10	120Ω	5	R120-4	1 3/4-125	Filament Dropping-Wire Wound
R11	33Ω	1/2	R335		Rectifier Ballast
R12	180Ω	1/2	R1805	BTS-180	Filter
R13	5600Ω	1/2	R56005	BTS-5600	Filter

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRLINE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	2KΩ	3.4Ω	175Ω	.6Ω	Part of C-535	A-3876	A-2928	R0-2	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	AIRLINE PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	P. M.	3.4Ω	C-535	ST-105 (Mod. P5-X)	5A1	
	CONE DIA.	V. C. DIA.				
SP1B	5"	9/16"				

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA								REMARKS
	AIRLINE PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1	60H21	AC-AG-J	A-AG	W26B	A66U	33	0-2 or S-2	

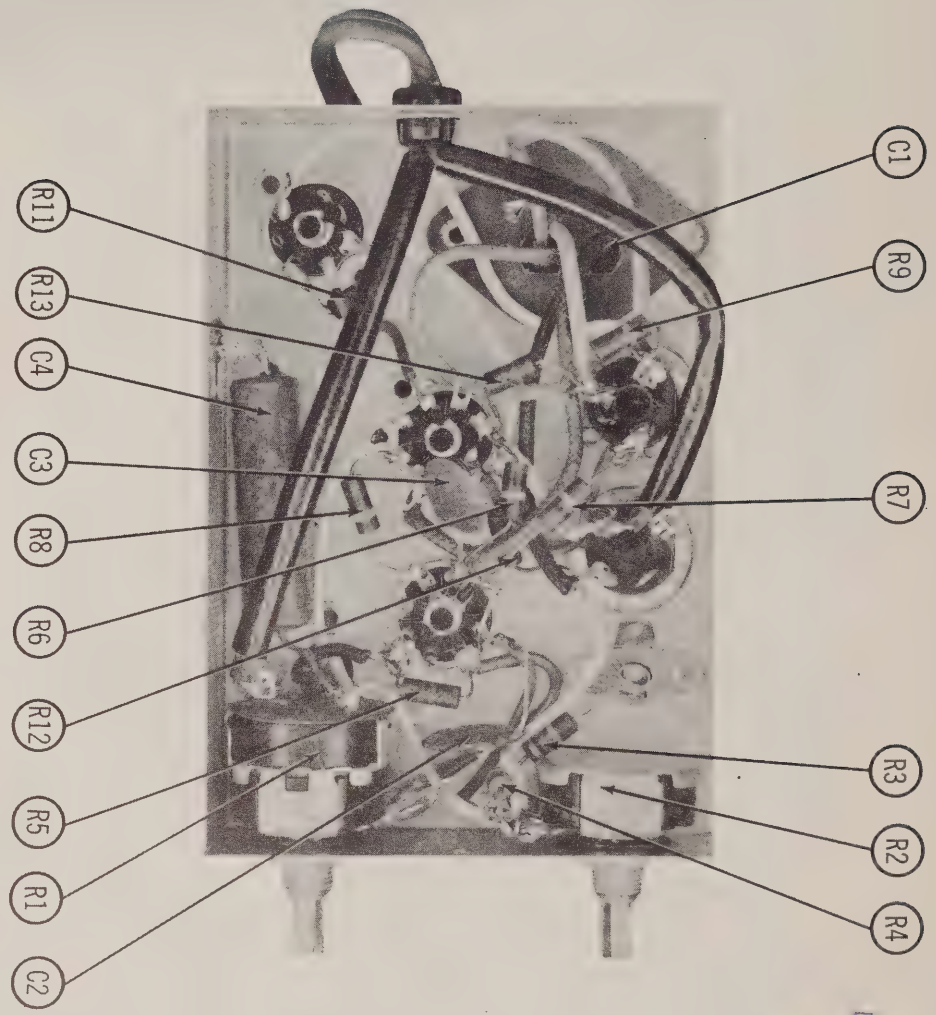
ASTATIC, SHURE, AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED: FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

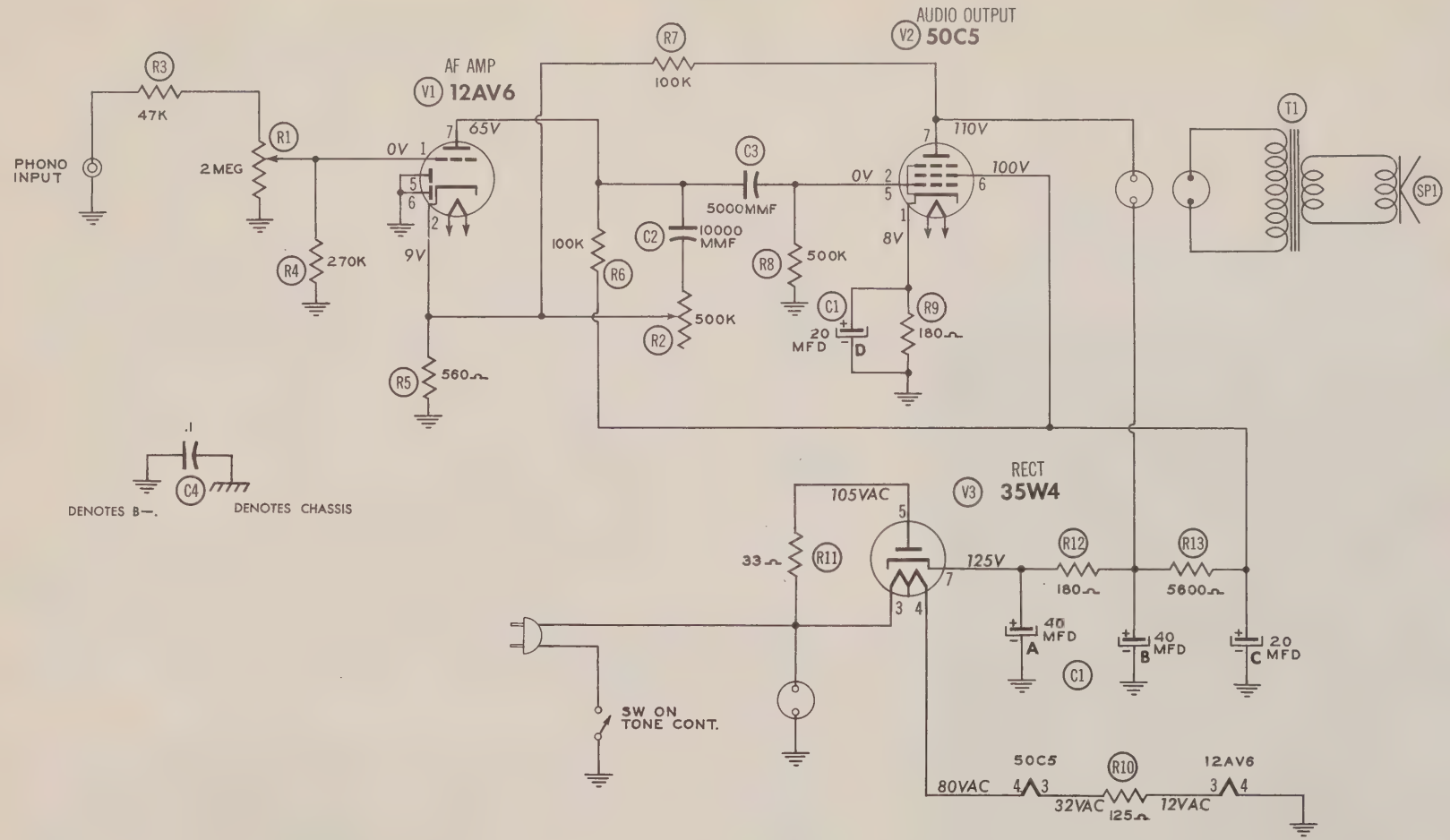
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	AIRLINE PART No.	WALCO PART No.	JENSEN PART No.	
M2	62-349	W-20AGA or W-21AGS	E-962 or E-902	

CHASSIS—BOTTOM VIEW



PROPERTY OF
L. F. GLANKLEHR



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12AV6	2Ω	560Ω	12Ω	0Ω	0Ω	0Ω	†100Ω
V 2	50C5	180Ω	500KΩ	132Ω	182Ω	500KΩ	†5.8KΩ	†355Ω
V 3	35W4	INF	INF	217Ω	182Ω	250Ω	200Ω	50KΩ

†MEASURED FROM PIN 7 OF V3

THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

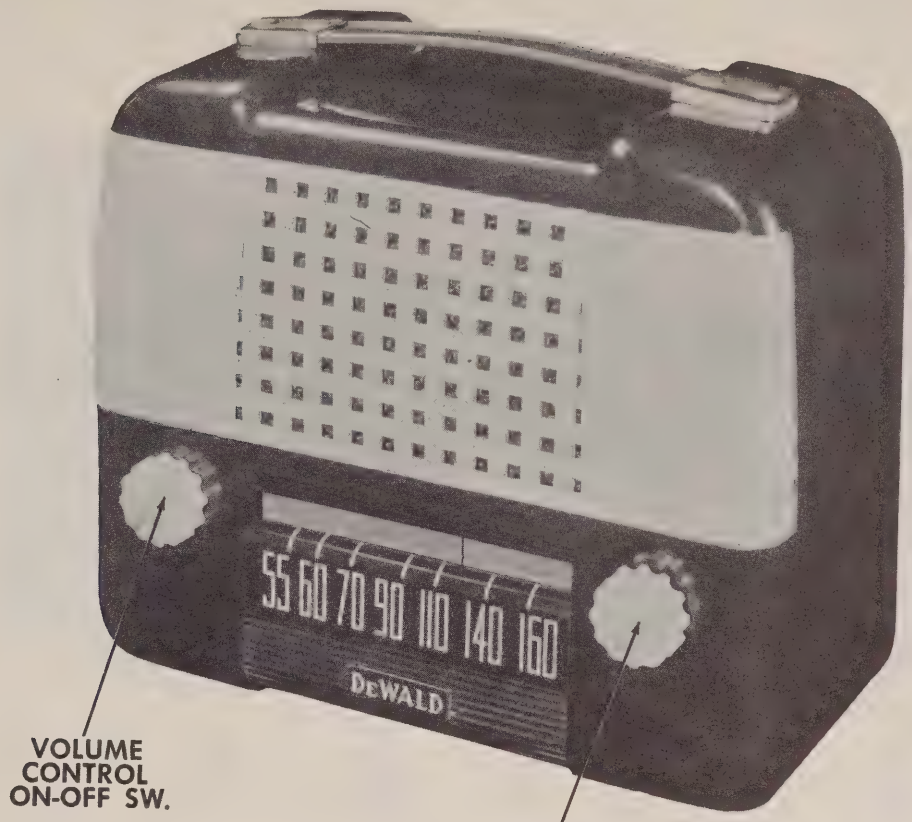
© Howard W. Sams & Co., Inc. 1952

1 - DC Voltage measurements are at 20,000 ohms per volt, AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Proper output load connected.

RTMA MEMBER RADIO-TELEVISION MANUFACTURERS ASSOCIATION

DEWALD MODEL D-E517A

DEWALD MODEL D-E517A



DEWALD MODEL D-E517A

TRADE NAME	Dewald Model D-E517A
MANUFACTURER	Dewald Radio Mfg. Co.,35-15 37th. Ave., Long Island City, N.Y.
TYPE SET	Three Power Portable Superheterodyne Receiver With Loop Antenna
TUBES (Four)	Types 1R5 Conv., 1T4 IF Amp., 1U5 Det.-AVC-AF Amp., 3V4 Audio Output
POWER SUPPLY	110-120 Volts AC/DC or 4.5 Volts "A" Supply & 90 or 67½ Volts "B" Supply
RATING	.15 Amp@ 117 Volts AC or 50MA@ 4.5 Volts DC & 14MA@ 67½ Volts DC or 18 MA@ 90 Volts DC
TUNING RANGE—BROADCAST	530-1700KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning gang fully closed and set pointer to the calibration mark on the dial backplate.
Use battery power, if possible. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	455KC (400~ Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Fashion loop of several turns of wire and radiate signal into loop of receiver Adjust for maximum output.
2.		"	1700KC	"	"	A5	"
3.		"	1500KC	Tune for max. output	"	A6	"

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

DEWALD MODEL D-E517A

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: DEWALD PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	1R5	1R5	7AT	
V2	IF Amplifier	1T4	1T4	6AR	Alternate - 1U4 (6AR Basing)
V3	Det. -AVC-AF Amp	1U5	1U5	6BW	
V4	Audio Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: DEWALD PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	50	150	2020E-2	PRS106D20A		EDL5315-X20		TVA-3433	Filter (Yellow)
B	30	150							Filter (Red)
C	200	15							Fil. Filter (Blue)
C2	.05	200		P288-05	DF-503	PJ2S5		2TM-S5	AVC Filter
C3	47			SI47	D6-470	5R5Q5	GP1K-470	5GA-Q47	Osc. Grid Cap
C4	.02	200		P488-02	DF-203	PJ2S2		2TM-S2	Osc. Anode Bypass
C5	5000			BPD-005	DD-502	TM5D5	811-005	5HK-D5	IF Amp. Grid Filter
C6	.25	200		P488-25		PJ2P25		2TM-P25	IF Amp. Decoupling
C7	150			SI150	D6-151	TM5T15	GP2K-151	5GA-T15	Diode RF Filter †
C8	5000			BPD-005	DD-502	TM5D5	811-005	5HK-D5	Audio Coupling ‡
C9A	100			SI100		TM5T1	GP1K-101	5GA-T1	AF Amp. Plate Bypass
B	.005			BPD-005	•PC-91	TM5D5	811-005	5HK-D5	AF Amp. Screen Bypass ¶
C	.005			BPD-005		TM5D5	811-005	5HK-D5	Audio Coupling ¶
C10	.001	400		P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	Audio Output Plate
C11	.1	200		P288-1	DF-104	PJ2P1		2TM-P1	Fil. Bypass
C12	.05	200		P288-05		PJ2S5		2TM-S5	Line Filter

† Some models use 220MMF in this application.
‡ Some models use 1000MMF in this application.
• Items C9A, C9B, C9C, R7A, R7B, R7C are combined in one unit.
¶ Some models use .01 MFD in this application.

CONTROLS

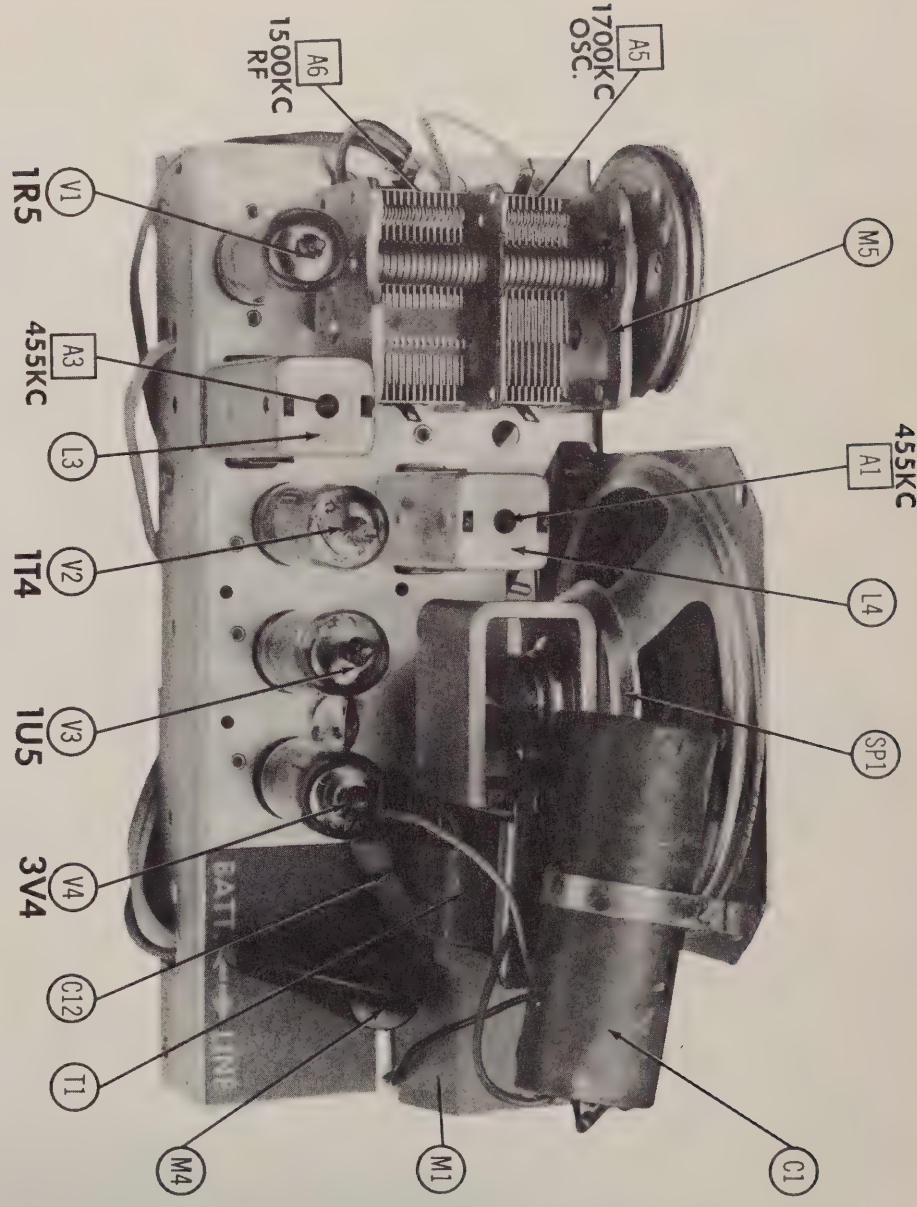
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: DEWALD PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1Meg	½	3012	Q13-137	AM-63-Z	BSK-70-S	Volume Control
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Attach to R1A per instructions
C	Switch		Not Req.	76-2	SWB-2	Not Req.	Attach to R1A per instructions.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: DEWALD PART No.	IRC PART No.	IDENTIFICATION CODES
R2	100KΩ	½			Osc. Grid
R3	10KΩ	½			Osc. Anode Decoupling
R4	3.3Meg	½			IF Amp. Grid
R5	3.3Meg	½		BTS-3.3Meg	AVC Network
R6	10Meg	½		BTS-10Meg	AF Amp. Grid
R7A	4.7Meg	½	•	BTS-4.7Meg	AF Amp. Screen
B	1Meg	½	•	BTS-1Meg	AF Amp. Plate
C	2.2Meg	½	•	BTS-2.2Meg	Output Grid
R8	27Ω	½			Filament String
R9	1200Ω	½		BTS-1200	Filament String
R10	270 Ω	½		BTS-270	Filament String
R11	220Ω	½		BTS-220	Filament String
R12	180Ω	½		BTS-180	Filament String
R13A	75Ω	5			Surge Limiter - Wire Wound
B	2100Ω	5			Filament Dropping - Wire Wound
R14	2700Ω	½		BTS-2700	Filter
R15	1800Ω	½		BTS-1800	Filament String
R16	150Ω	½		BTS-150	Bias Network

• Items R7A, R7B, R7C, C9A, C9B, C9C are combined in one unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		DEWALD PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	10KΩ	3.4Ω	450Ω	.5Ω	Part of 7003C-3	A-3879 ①	A-2932 ①	R0-16 ①	① Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	DEWALD PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	P. M.	3.4Ω	7003C-3	ST-113 Mod. P4-X	4A07	
	CONE DIA.	V. C. DIA.				
SP1B	4"	9/16"				

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	DEWALD PART No.	MERIT PART No.	
L1	Loop Ant.	2.6Ω		1037		
L2	Osc. Coil	1.6Ω	5.4Ω	1034		
L3	Input IF	24Ω	24Ω	1027E-4		
L4	Output IF	24Ω	24Ω	1027E-2		

SELENIUM RECTIFIER

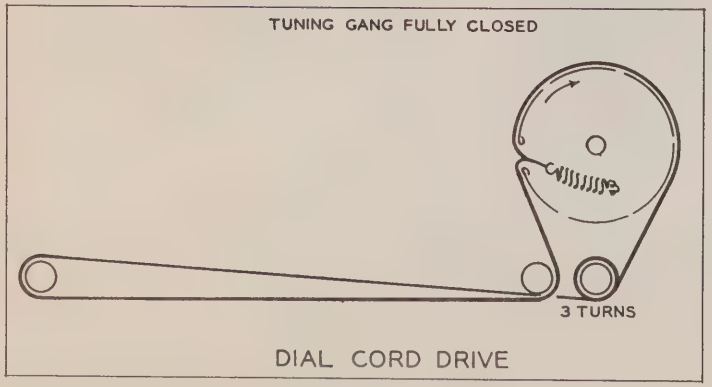
ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT	DEWALD PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	
M1	.070ADC	8018B	NB-5	5M4	1003A	

BATTERIES

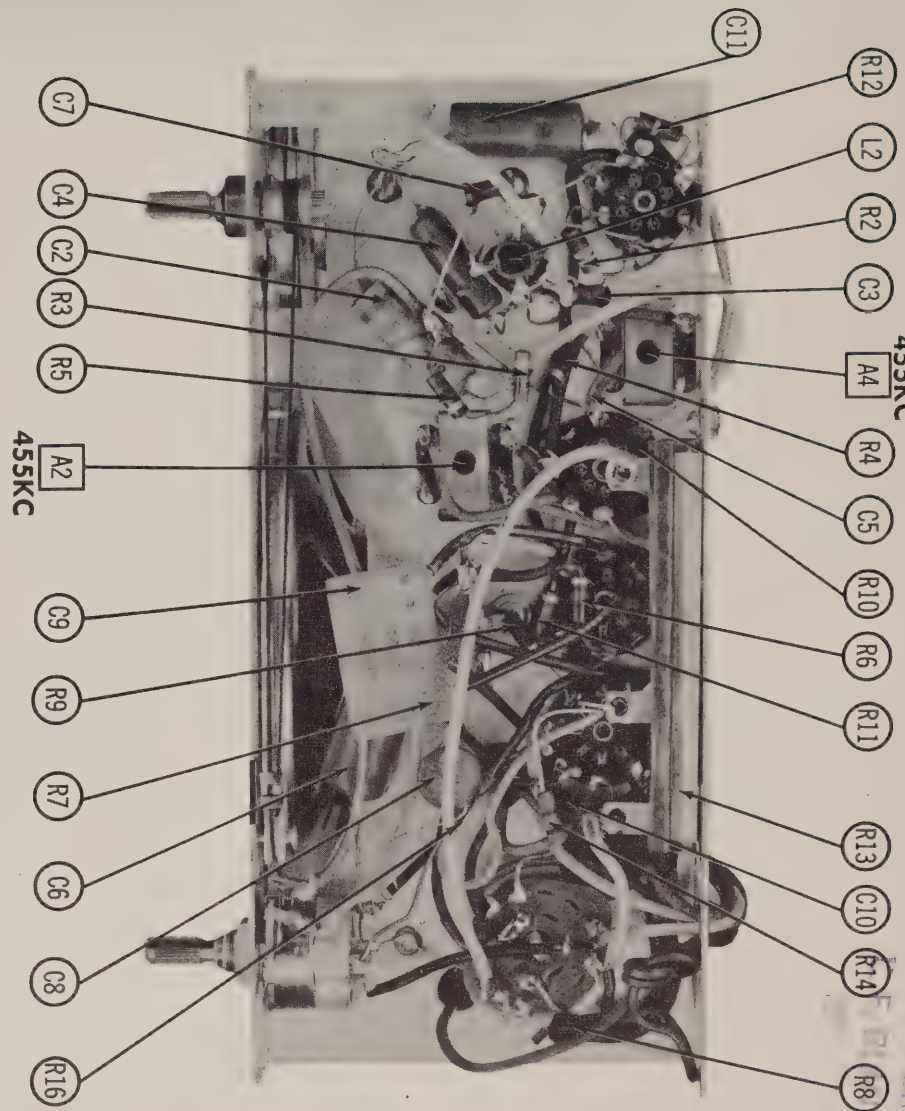
ITEM No.	VOLTAGE	DEWALD PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2A			736			F3			
B			746			G3			
M3A				490			N60		90 Volts
B				467			XX45		67.5 Volts

MISCELLANEOUS

ITEM No.	PART NAME	DEWALD PART No.	NOTES
M4	Switch		Power Change-over
M5	2 Gang Var. Cap.	2017B	(25-465MMF, 25-193MMF)
	Knobs	405SA	

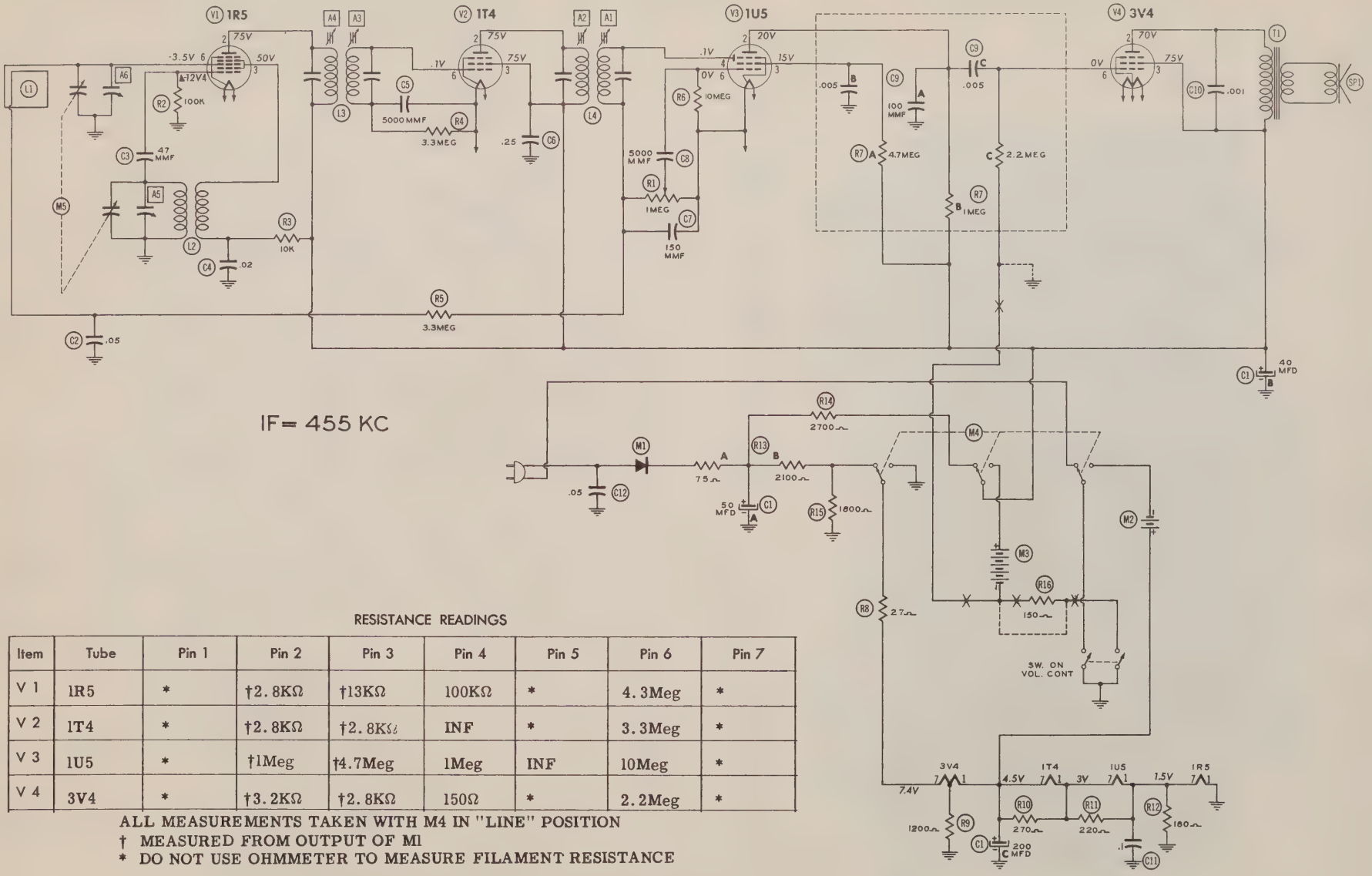


CHASSIS—BOTTOM VIEW



PROPERTY OF

DEWALD MODEL D-E517A


V1 1R5
V2 1T4
V3 1U5
V4 3V4
IF= 455 KC
RESISTANCE READINGS
SW. ON VOL. CONT
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	*	†2.8KΩ	†13KΩ	100KΩ	*	4.3Meg	*
V 2	1T4	*	†2.8KΩ	†2.8KΩ	INF	*	3.3Meg	*
V 3	1U5	*	†1Meg	†4.7Meg	1Meg	INF	10Meg	*
V 4	3V4	*	†3.2KΩ	†2.8KΩ	150Ω	*	2.2Meg	*

ALL MEASUREMENTS TAKEN WITH M4 IN "LINE" POSITION
† MEASURED FROM OUTPUT OF M1
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE

A PHOTOFACT STANDARD NOTATION SCHEMATIC
©Howard W. Sams & Co., Inc. 1952

167-5

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DENVER, COL.

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

MODEL 709A

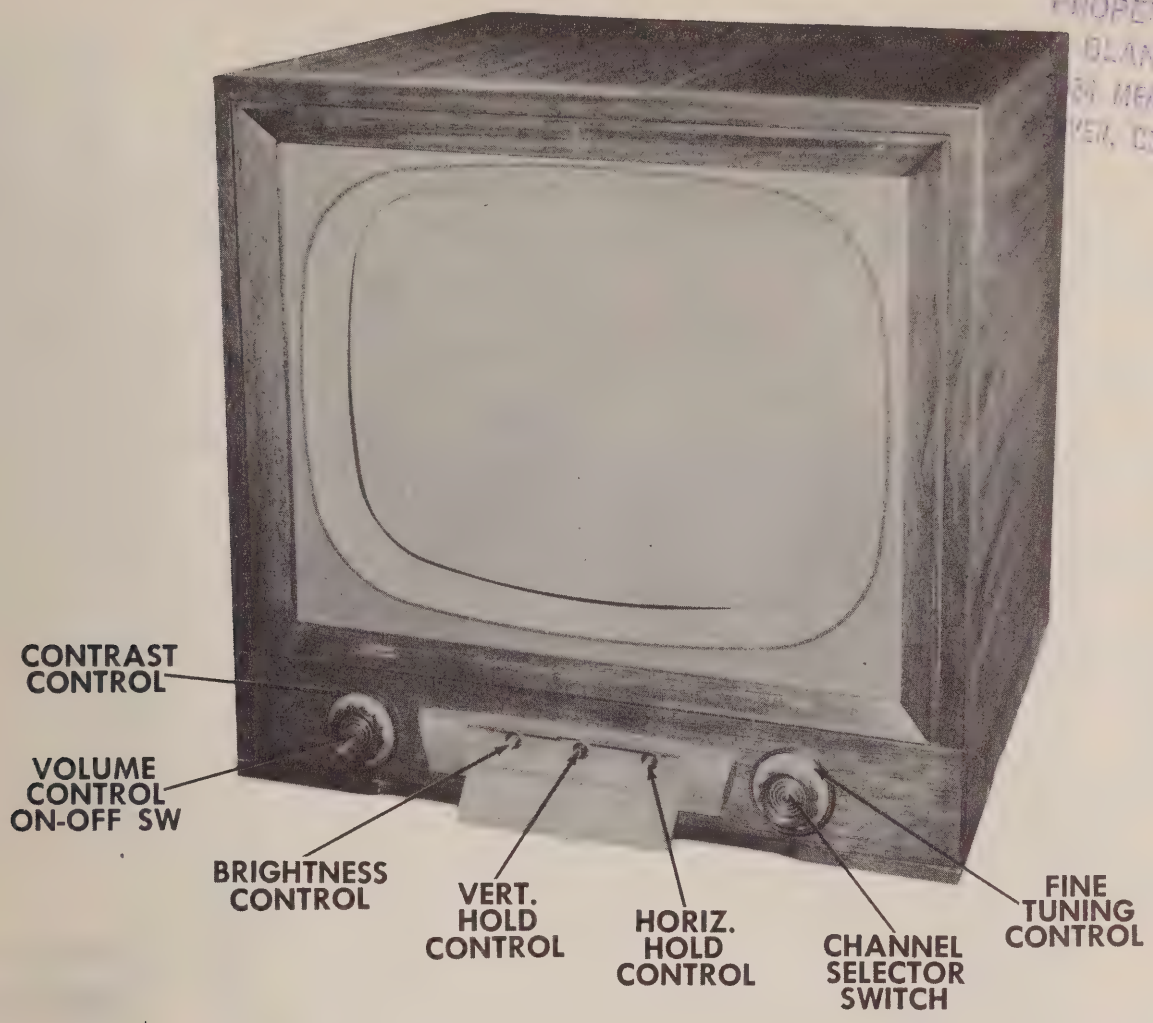
EMERSON
MODEL 709A (Ch. 120162-A)

HOWARD W. SAMS & CO., INC. • Indianapolis, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 5-52 SET 167 FOLDER 6

PROPERTY OF
BLANKENSHI
MEADE ST.
VER, COLO



EMERSON
MODEL 709A (Ch. 120162-A)

Emerson Model 709A

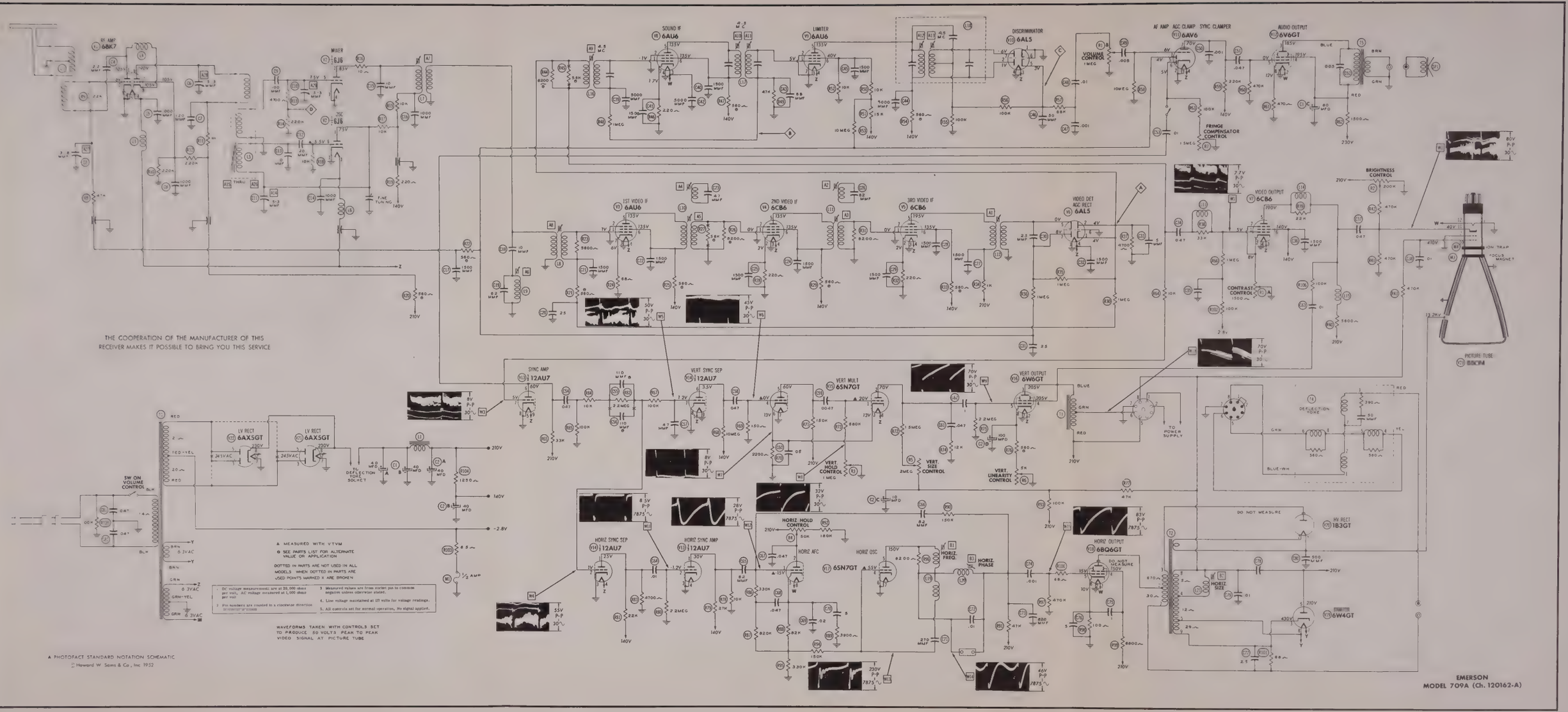
TRADE NAME	Emerson Model 709A (Ch. 120162-A)
MANUFACTURER	Emerson Radio & Phono Corp., 111 8th Ave., New York, N. Y.
TYPE SET	Television Receiver
TUBES	Twenty-Three
POWER SUPPLY	110-120 Volts AC - 60 cycles RATING 1.65 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13

INDEX

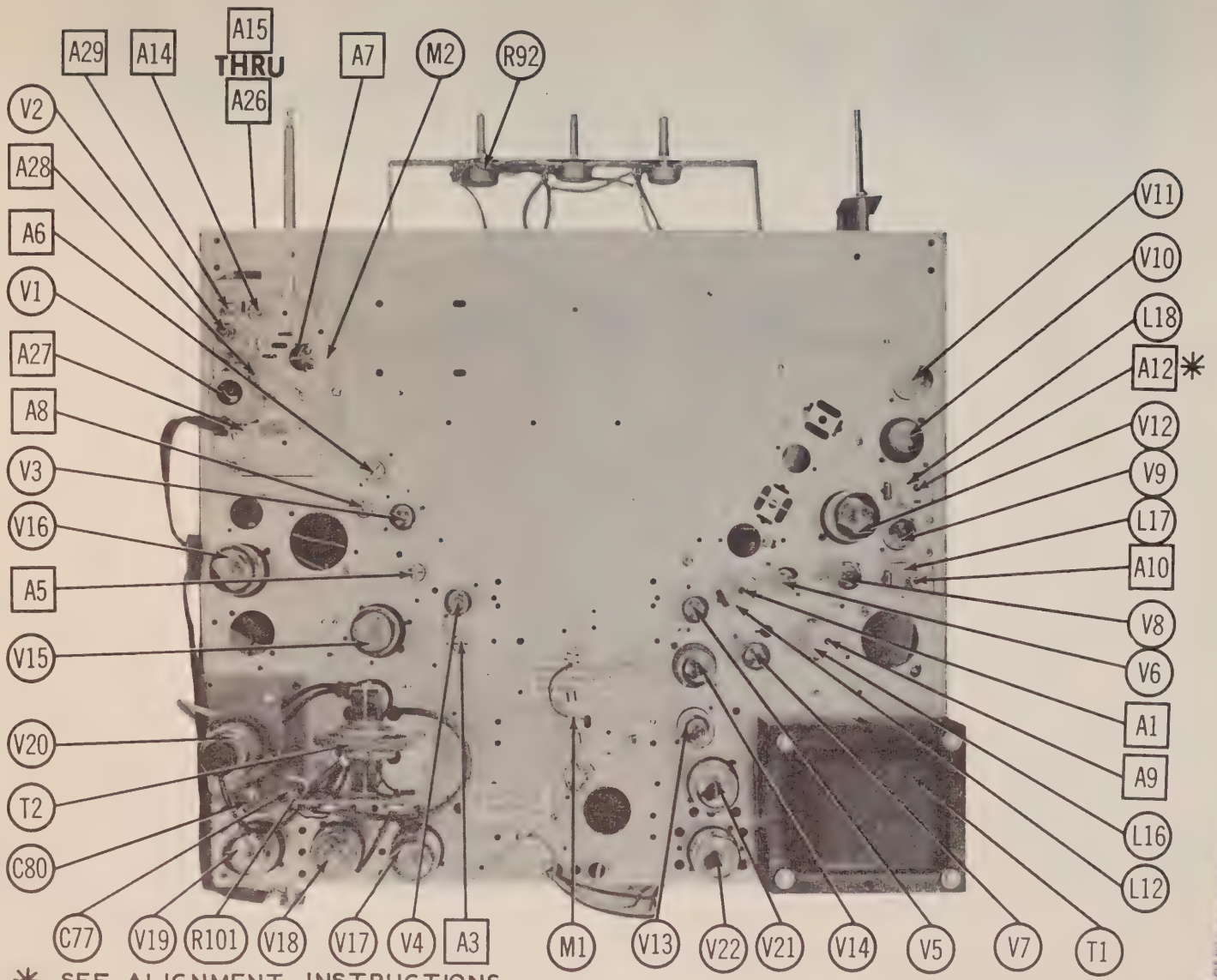
Alignment Instructions 6, 7
Disassembly Instructions 11
Horizontal Sweep Circuit Adjustments 11
Parts List and Descriptions 12, 13, 14
Photographs
Cabinet - Rear View 11
Capacitor and Alignment Identification 4, 9
Photos (Cont.)
Chassis - Top View 3
RF Tuner 10
Resistor and Inductor Identification 15, 16
Resistance Measurements 8
Schematic 2
Tube Placement Charts 5

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

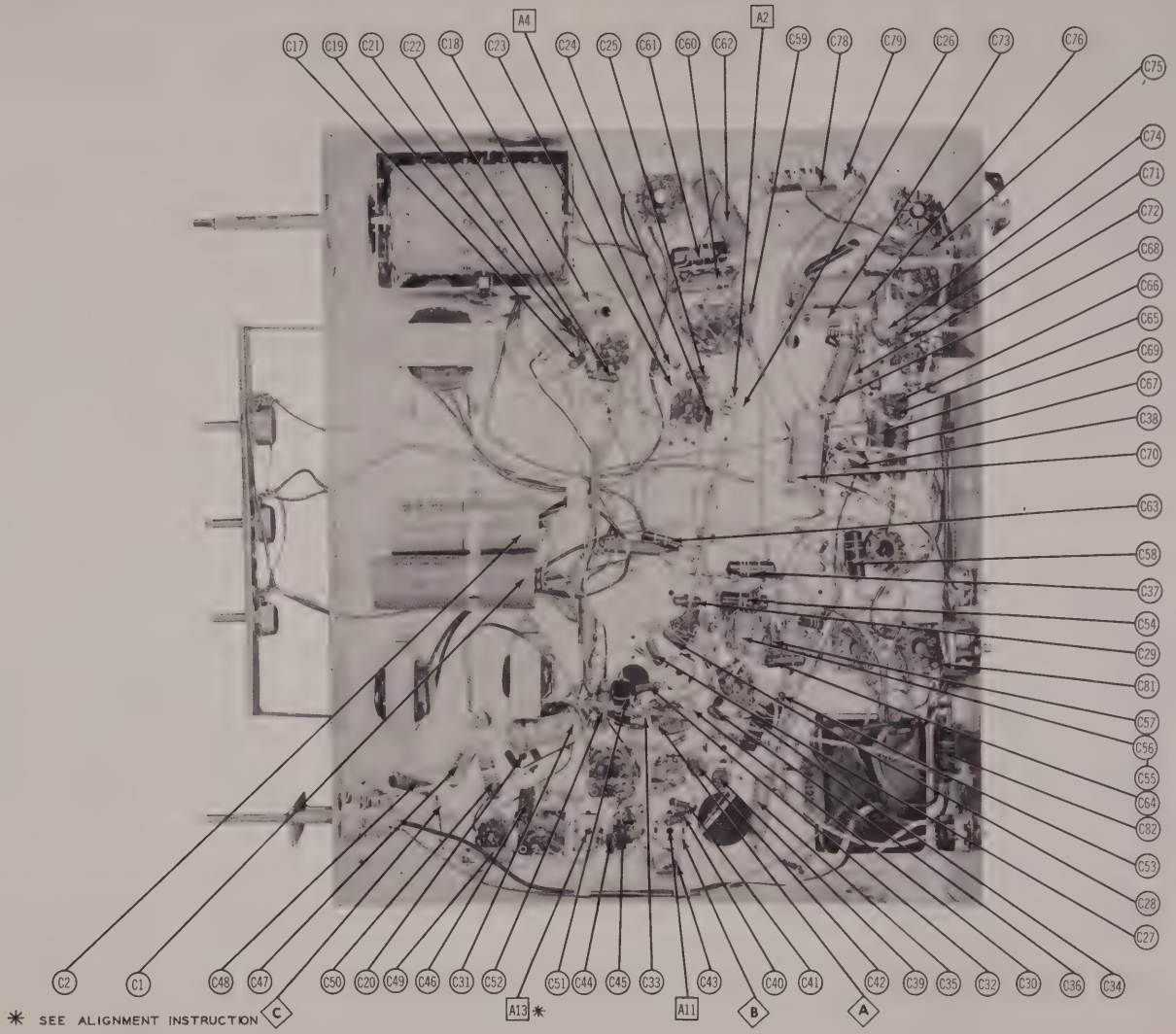


EMERSON
MODEL 709A (Ch. 120162-A)



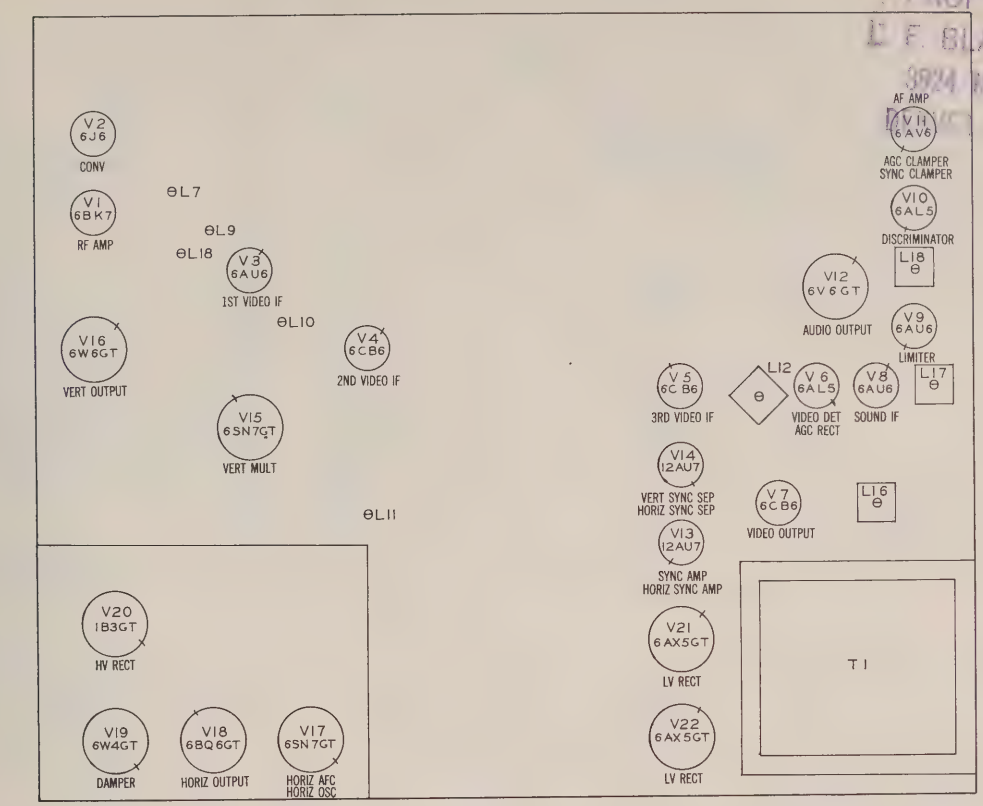
CHASSIS TOP VIEW

PROPERTY OF
L F
3924 MEADE ST
DENVER, COLORADO

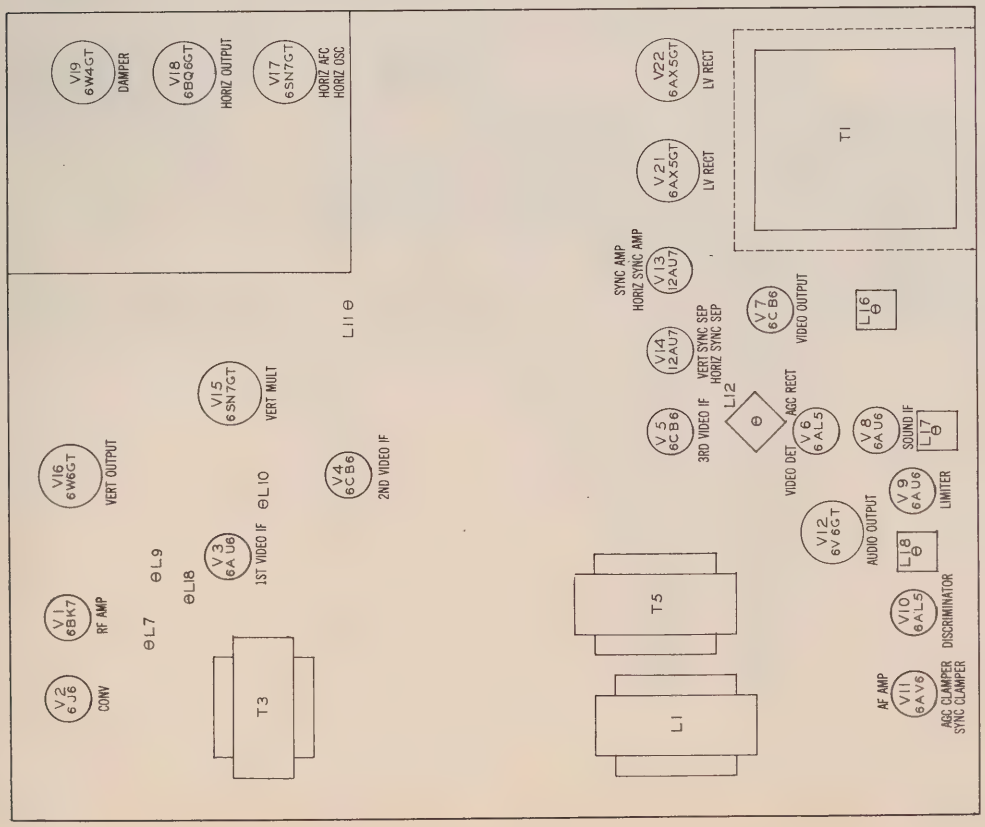


CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

PROPERTY OF
L. F. BLANKENSHIP



TOP VIEW



BOTTOM VIEW

TUBE PLACEMENT CHART

EMERSON
MODEL 709A (Ch. 120162-A)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube, (V17) from its socket.

VIDEO IF ALIGNMENT

Remove the converter tube, (V2), from its socket and replace it with a 6J6 which has Pin 1 removed. This will disable the local oscillator and prevent the possibility of erroneous indications.
Connect the negative lead of a 3 volt battery to the ungrounded lead of C20, connect the positive lead to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.001MFD	High side to Pin 1, (grid) of 6AU6, (V3). Low side to chassis.	Not used	23.6MC	Any	Use VTVM DC probe to Point (A) Common to chassis.	A1	Adjust for maximum deflection.
2.	"	"	"	21.25MC	"	"	A2	Adjust for MINIMUM deflection.
3.	"	"	"	22.7MC	"	"	A3	Adjust for max. deflection.
4.	"	"	"	27.25MC	"	"	A4	Adjust for MINIMUM deflection.
5.	"	"	"	25.3MC	"	"	A5	Adjust for max. deflection.
6.	"	"	24MC (10MC swp.)	21.25MC 22.25MC 25.75MC 27.25MC	"	Vert. amp. thru 10KΩ to Point (A) Low side to chassis.	A1, A3, A5	Adjust for response curve similar to Fig. 3. Retouch A5 to properly position the 25.75MC marker, A3 to position the 22.25MC marker & A1 to flatten the top of the response curve.
7.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	Not used	21.25MC	"	Use VTVM DC probe to Point (A) Common to chassis.	A6	Adjust for MINIMUM deflection.
8.	"	"	24MC (10MC swp.)	22.5MC 25.75MC	"	Vert. amp. thru detector, (Fig.2), to Pin 1, (grid) of 6CB6 (V4). Low side to chassis.	A7, A8	Adjust for response curve similar to Fig. 1.
9.	"	"	"	21.25MC 22,25MC 25.75MC 27.25MC	"	Vert. amp. thru 10KΩ to Point (A) Low side to chassis.		Check for response curve similar to Fig. 3. If necessary retouch A1, A3, A5, A7 & A8 for proper response.

SOUND IF ALIGNMENT

This receiver employs one of two discriminator transformers. On transformer #708018 the secondary (A12) is on top and the primary. (A13) is on the bottom. On transformer #708017 the secondary is on the bottom and the primary is on top. Check the number on the transformer and proceed accordingly.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	.01MFD	High side to Pin 2, (plate) of 6AL5, (V6). Low side to chassis.	Not used	4.5MC	Any	Use VTVM DC probe to Point (B). Common to chassis.	A9, A10 A11	Adjust for maximum deflection.
11.	"	"	4.5MC (450KC swp.)	"	"	Vert. amp. thru 10KΩ to Point (C) Low side to chassis.	A12, A13	Adjust A12 to place 4.5MC marker at center of S curve as shown in Fig. 4. Adjust A13 for maximum amplitude of S curve with symmetrical peaks.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Adjust the overall oscillator adjustment screw (A14), so the top of the screw is 3/8 inch above the top surface of the tuner.
Turn the fine tuning control to the mid-position of its range, (tooth on cam pointing straight down).
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC swp.)	205.25MC 209.75MC	12	Vert. amp. thru 10KΩ to Point (A) Low side to chassis.	A15	Adjust to place sound marker in trap notch as shown in Fig. 5. The video marker should be between 55 & 60%.
			213MC (10MC swp.)	211.25MC 215.75MC	13		A16	
			201MC (10MC swp.)	199.25MC 203.75MC	11		A17	
			195MC (10MC swp.)	193.25MC 197.75MC	10		A18	
			189MC (10MC swp.)	187.25MC 191.75MC	9		A19	
			183MC (10MC swp.)	181.25MC 185.75MC	8		A20	
			177MC (10MC swp.)	175.25MC 179.75MC	7		A21	
			85MC (10MC swp.)	83.25MC 87.75MC	6		A22	
			79MC (10MC swp)	77.25MC 81.75MC	5		A23	
			69MC (10MC swp.)	67.25MC 71.75MC	4		A24	
			63MC (10MC swp.)	61.25MC 65.75MC	3		A25	
			57MC (10MC swp.)	55.25MC 59.75MC	2		A26	

ALIGNMENT INSTRUCTIONS (CONT.)

RF & MIXER ALIGNMENT

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection. The sweep generator output lead should be terminated with its charactistic impedance, usually 50 ohms.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC swp.)	205.25MC 209.75MC	12	Vert. amp. thru 10KΩ to Point D. Low side to chassis.	A27, A28, A29	Adjust for response curve similar to Fig. 6 with markers above 90%.
14.	"	"	213MC (10MC swp.)	211.25MC 215.75MC	13	"		Check all channels for response curve similar to Fig. 6. If markers fall below 70% on any channel make slight compromise adjustment of A27, A28 & A29 with channel switch set for that channel. Recheck all channels to see that they have not been seriously effected.
			201MC (10MC swp.)	199.25MC 203.75MC	11			
			195MC (10MC swp.)	193.25MC 197.75MC	10			
			189MC (10MC swp.)	187.25MC 191.75MC	9			
			183MC (10MC swp.)	181.25MC 185.75MC	8			
			177MC (10MC swp.)	175.25MC 179.75MC	7			
			85MC (10MC swp.)	83.25MC 87.75MC	6			
			79MC (10MC swp.)	77.25MC 81.75MC	5			
			69MC (10MC swp.)	67.25MC 71.75MC	4			
			63MC (10MC swp.)	61.25MC 65.75MC	3			
			57MC (10MC swp.)	55.25MC 59.75MC	2			

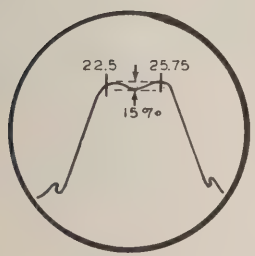


FIG.1

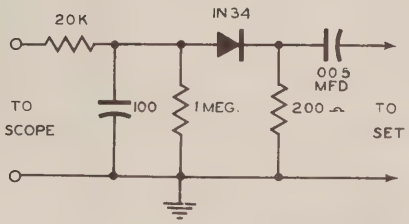


FIG.2

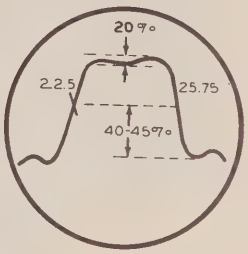


FIG.3

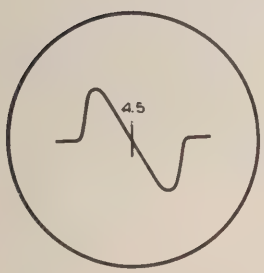


FIG.4

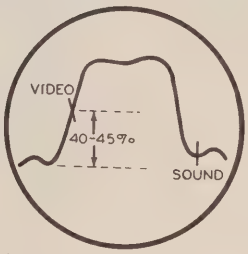


FIG.5

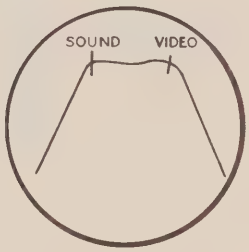


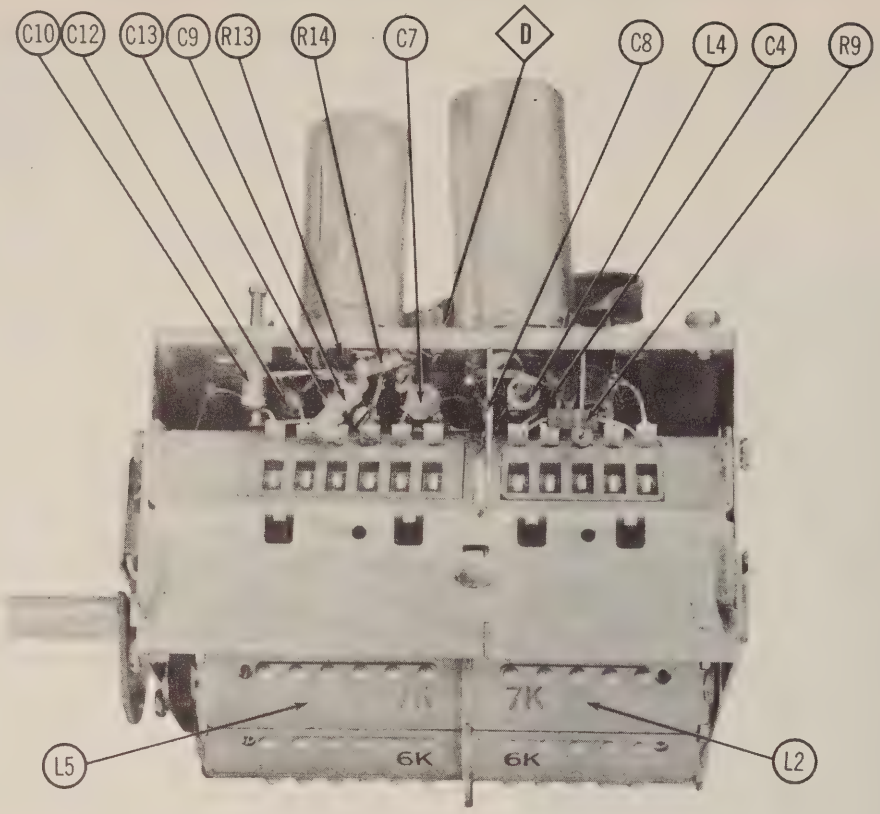
FIG.6

RESISTANCE MEASUREMENTS

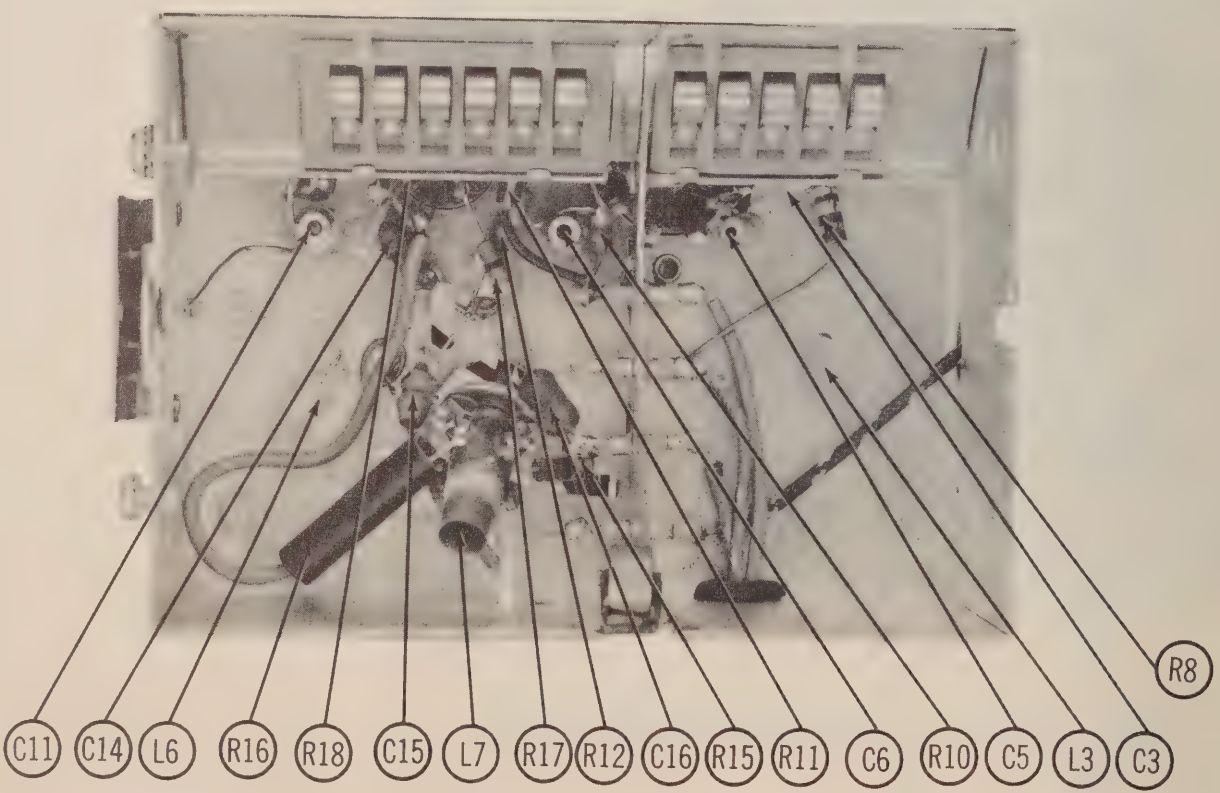
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BK7	INF	2Meg	0Ω	.1Ω	0Ω	†1.6KΩ	110KΩ	INF	0Ω
V 2	6J6	†11KΩ	†11KΩ	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6AU6	1Meg	0Ω	0Ω	.1Ω	†1.8KΩ	†1,8KΩ	68Ω		
V 4	6CB6	.4Ω	220Ω	0Ω	.1Ω	†1,8KΩ	†1.8KΩ	0Ω		
V 5	6CB6	.2Ω	220Ω	0Ω	.1Ω	† 1.1KΩ	†1.8KΩ	0Ω		
V 6	6AL5	4.7KΩ	4.7KΩ	0Ω	.1Ω	.9Ω	0Ω	1Meg		
V 7	6CB6	1.1Meg	300Ω	.1Ω	0Ω	†5.6KΩ	†1.3KΩ	300Ω		
V 8	6AU6	1Meg	0Ω	.1Ω	0Ω	†1.8KΩ	†1.8KΩ	220Ω		
V 9	6AU6	47KΩ	0Ω	0Ω	.1Ω	†1.8KΩ	8KΩ	0Ω		
V 10	6AL5	0Ω	100KΩ	.1Ω	0Ω	220KΩ	0Ω	100KΩ		
V 11	6AV6	10Meg	0Ω	0Ω	.1Ω	1.6Meg	100KΩ	†220KΩ		
V 12	6V6GT	†10KΩ	.1Ω	†1.8KΩ	†1.5KΩ	470KΩ	†1.3KΩ	0Ω	470Ω	
V 13	12AU7	8.5KΩ	2.2Meg	0Ω	0Ω	0Ω	†33KΩ	15KΩ	0Ω	.1Ω
V 14	12AU7	4KΩ	2.3Meg	0Ω	.1Ω	.1Ω	†10Meg	2.4Meg	0Ω	0Ω
V 15	6SN7GT	1.3Meg	#2.3Meg	2.2KΩ	150Ω	†150KΩ	2.2KΩ	0Ω	.1Ω	
V 16	6W6GT	540Ω	.1Ω	†313Ω	†313Ω	2.2Meg	INF	0Ω	1.1KΩ	
V 17	6SN7GT	1.5Meg	†18KΩ	410KΩ	480KΩ	†47KΩ	0Ω	0Ω	.1Ω	
V 18	6BQ6GT	INF	0Ω	INF	†6.9KΩ	470KΩ	470KΩ	.1Ω	100Ω	TOP CAP #98Ω
V 19	6W4GT	INF	INF	90KΩ	INF	†75Ω	INF	29Ω	29Ω	
V 20	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								TOP CAP 768Ω
V 21	6AX5GT	INF	.1Ω	28Ω	INF	28Ω	INF	0Ω	9KΩ	
V 22	6AX5GT	INF	.1Ω	29Ω	INF	29Ω	INF	0Ω	9KΩ	
V 23	20CP4	0Ω	0Ω	PIN 10 #470KΩ	PIN 11 225KΩ	PIN 12 .1Ω				

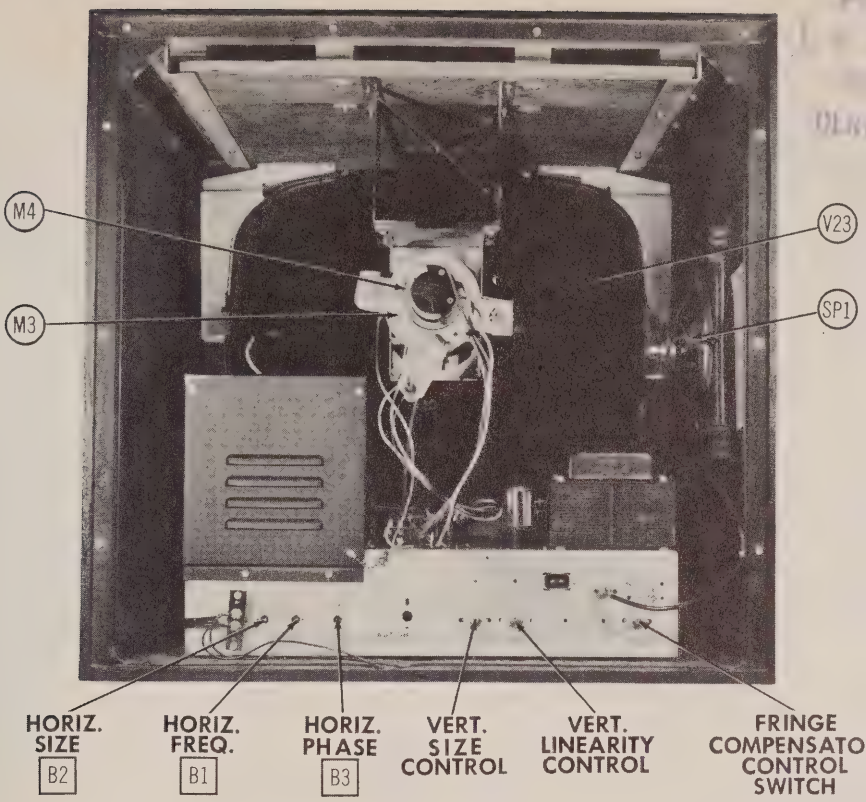
ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
FRINGE COMPENSATION IN OFF POSITION
† MEASURED FROM PINS 8 OF V21 & V22
# MEASURED FROM PIN 3 OF V19



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Connect a short across L20, (this may be done by shorting the terminals on the terminal strip on top rear of chassis).

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to fully clockwise.

Starting with the slug all the way out, adjust the horiz. frequency slug, (B1), inward until the picture synchronizes horizontally.

Examine the width of the picture and adjust the horizontal size slug, (B2), if necessary. If the picture falls out of sync readjust B1.

Remove the short from L20.

Starting with the slug all the way out, adjust the horizontal phase slug, (B3), inward until the picture synchronizes.

Momentarily interrupt the signal by switching to another channel and back again. If the picture does not pull into sync , adjust B3 inward until the picture again synchronizes.

Check the sync on all available channels the picture should immediately pull into sync after removal of the signal.

FRINGE COMPENSATOR ADJUSTMENT

The fringe compensator is used to reduce impulse type interference in weak signal areas.

Turn the set on and tune the lowest available channel.

If the signal is weak, turn the fringe compensator switch to "on" and turn the fringe compensator control to the approximate center of its range. Check the sync operations on all available stations. Adjust the control for best compromise on all stations.

DISASSEMBLY INSTRUCTIONS

1. Remove 4 push on type control knobs from front panel.
2. Remove back cover.
3. Disconnect built-in antenna and speaker.
4. Remove 2 clamps holding speaker. Remove speaker.
5. Disconnect picture tube socket, HV lead, yoke plug and ground strap.
6. Remove 4 chassis bolts. Remove chassis.

NOTE. FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE CHASSIS AS OUTLINED ABOVE.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No	USE	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	800096	6BK7	9AJ	
B	RF Amplifier	800065	6BQ7	9AJ	
V2	Converter	800536	6J8	7BF	
V3	1st. Video IF Amp.	800533	6AU8	7BK	
V4	2nd. Video IF Amp.	800055	6CB6	7CM	
V5	3rd. Video IF Amp.	800065	6CB6	7CM	
V6	Video Detector - AGC Rectifier	800054	6AL5	6BT	
V7	Video Output	800055	6CB6	7CM	
V8	Sound IF Amp.	800533	6AU8	7BK	
V9	Limiter	800533	6AU8	7BK	
V10	Discriminator	800541	6AL5	6BT	
V11	AF Amplifier - AGC Clamper- Sync. Clamper	800057	6AV6	7BT	
V12	Audio Output	800370	6V6GT	7AC	
V13	Sync. Amplifier - Horiz.Sync.Amp.	800036	12AU7	9A	
V14	Vert. Sync. Sep.- Horiz.Sync. Sep.	800028	12AU7	9A	
V15	Vert. Mult.	800380	6SN7GT	8BD	
V16	Vert.Output	800061	6W6GT	7AC	
V17	Horiz.AFC-Horiz. Oscillator	800380	6SN7GT	8BD	
V18	Horiz.Output	800059	6BQ6GT	8AM	
V19	Damper	800037	6W4GT	4CG	
V20	HV Rectifier	800450	1B3GT	3C	
V21	LV Rectifier	800063	6AX5GT	8S	
V22	LV Rectifier	800062	6AX5GT	8S	

CATHODE-RAY TUBE

ITEM No	REPLACEMENT DATA: EMERSON PART No	REPLACEMENT DATA: SYLVANIA PART No.	RTMA BASE TYPE	NOTES
V23	20CP4	20CP4 20CP4A ① 20DP4 20DP4A ① 20HP4 ② ① 20HP4A ① ①	12D	① Add spring clip to ground outside coating of tube ② Circuit changes necessary - Low voltage focusing circuit required.

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	300	925203 ¶	PRS450/40-40		UP8445		TVA-2740	Filter (Red)
B	40	300		PR8450/40-40		BR4035		TVA-1716	Filter (Blue)
C	80	300							Audio Output Dec. (Green)
C2A	40	300	925304 ¶	AFE4-S7		UPT403		TVL-4747	Filter
	40	250							Decoupling (Blue)
C	10	450							Decoupling (Yellow)
D	100	50							Vert. Output Cathode (Green)
C3	3-8			829-10					Variable Trimmer
C4	2-12			TC2-2, 2			NP0K-2R2		Neutralizing Cap.
C5	1000			SU000		D6-102	TM5D1	5HK-D1	RF Amp. Fil.
C6	.5-3			829-3					Variable Trimmer
C7	120			SU20		D6-121	TM5T12	GP2K-121	5GA-T12
C8	1000			BPD-001		DD-102	TM5D1	801-001	5HK-D1
C9	100			SU00		D6-101	TM5T1	GP1K-101	5GA-T1
C10	.5-3					829-3			Variable Trimmer
C11	.5-3					829-3			Variable Trimmer
C12	20			SU20NP0		TC2-20		NP0K-200	Osc. Grid Cap.
C13	10			SU10N750		TC2-10		N750K-100	5TCU-Q1 Fixed Trimmer
C14	1000			SU000		D6-102	TM5D1	GP2L-102	5HK-D1 Conv. Fil. Bypass
C15	10			SU10N750		TCN-10		N750K-100	5TCU-Q1 Fixed Trimmer
C16	1000			SU000		D6-102	TM5D1	GP2L-102	5HK-D1 Mixer Plate Dec.
C17	1500		928005	SU500		D6-152	TM5D15	GP2L-152	5HK-D15 AGC Filter
C18	10		928078	SU0		GP1K-100	5W5Q8	5GA-Q8	IF Coupling
C19	62	500				TCN-62	N750K-620		2nd. Video IF Cathode Fixed Trimmer
C20	.35	300	921330	P488-35			P12P25		2TM-P25 AGC Filter
C21	1500		928006	SU500		D6-152	TM5D15	GP2L-152	5HK-D15 AGC Filter
C22	1500			SU500		D6-152	TM5D15	GP2L-152	5HK-D15 1st. Video IF Dec.
C23	47			S147NP0		TC2-47		NP0L-470	5TCC-Q47 Fixed Trimmer
C24	1500		928006	SU500		D6-152	TM5D15	GP2L-152	5HK-D15 2nd. Video IF Dec.
C25	1500		928006	SU500		D6-152	TM5D15	GP2L-152	5HK-D15 2nd. Video IF Cathode
C26	62					TCN-62		N750K-620	Fixed Trimmer
C27	1500		928006	SU500		D6-152	TM5D15	GP2L-152	5HK-D15 3rd. Video IF Plate
C28	1500		928006	SU500		D6-152	TM5D15	GP2L-152	5HK-D15 3rd. IF Screen
C29	1500		928006	SU500		D6-152	TM5D15	GP2L-152	5HK-D15 3rd. Video IF Cathode
C30	25		928110	SI25		D6-250	SW5Q25	GP1K-250	5GA-Q25 IF Coupling
C31	.35	300	921330	P488-35			P12P25		2TM-P25 AGC Filter
C32	1500		928006	SU500		D6-152	TM5D15	GP2L-152	5HK-D15 Video Det. Fil. Bypass
C33	5		928017	S15NP0		TCZ-4, 7	SR5Y5	NP0K-050	M5-55 Video Det. Filter
C34	.047	400	922554	P488-047		DF-503	PTE4S47		4TM-S47 Video Coupling
C35	.1	200	921315	P288-1		DF-104	P12P1		2TM-P1 Bias Filter
C36	1500		928006	SU500		D6-152	TM5D15	GP2L-152	5HK-D15 Video Output Screen
C37	.047	400	922554	P488-047		DF-503	PTE4S47		4TM-S47 Video Coupling
C38	.01	800	921714	P688-01		D6-103	PTE6S1	GP2-333-103	6TM-S1 Acc. Anode Bypass
C39	5000		928109	BPD-005		DD-502	TM5D5	811-005	5HK-D5 AVC Filter
C40	1500		928006	SU500		D6-152	TM5D15	GP2L-152	5HK-D15 Sound IF Decoupling
C41	1500		928008	SU1500		D6-152	TM5D15	GP2L-152	5HK-D15 Sound IF Cathode
C42	5000		928109	BPD-005		DD-502	TM5D5	811-005	5HK-D5 Sound IF Fil. Bypass
C43	68	500	910231	1469-00007		D6-680	SW5Q7	GP1K-680	M5-47 Limiter Grid Filter
C44	5000		928109	BPD-005		DD-503	TM5D5	811-005	5HK-D5 Limiter Plate Dec.
C45	1500		928006	SU500		D6-152	TM5D15	GP2L-152	5HK-D15 Limiter Screen Bypass
C46	50	500	910222	1468-00005		D6-500	SW5Q6	GP1K-500	1FM-45 RF Bypass

CAPACITORS (CONT.)

ITEM No	RATING: CAP	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C47	.001	600	921713	P688-001	D6-102	PTE6J1	GP2L-102	6TM-D1	De-Emphasis
C48	.01	400	921514	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C49	.005	600	921753	P688-005	D6-503	PTE6D5	GP2-333-503	6TM-D5	Audio Coupling
C50	.001	600	921713	P688-001	D6-103	PTE6D1	GP2L-102	6TM-D1	AF Amp. Plate Bypass
C51	.047	400	922554	P488-047	DF-503	PTE4S47		4TM-S47	Audio Coupling
C52	.005	400	921753	P688-005	D6-503	PTE6D5	GP2-333-503	6TM-D5	Audio Output Plate
C53	.01	400	922514	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Sync. Coupling
C54	.047	400	922554	P488-047	DF-503	PTE4S47		4TM-S47	Sync. Coupling
C55	110	500		1469-0001		5RS71	GP1K-111	MS-31	Sync. Coupling †
C56	110	500		1469-0001		5RS71	GP1K-111	MS-31	Sync. Coupling ¶
C57	47	500	910058	1468-00005	D6-470	5WSQ5	GP1K-470	1FM-45	Vert. Sync. Sep. Grid
C58	.047	400	922554	P488-047	DF-503	PTE4S47		4TM-S47	Vert. Sync. Coupling
C59	.0047	400	922453	P488-0047	DF-473	PTE6D47	GP2-333-472	6TM-D47	Vert. MV Feedback
C60	.05	200	921354	P288-05	DF-503	P12S5		2TM-S5	Vert. MV Cathode
C61	.047	600	922554	P588-047		PTE6S47		6TM-S47	Vert. Discharge
C62	.1	600	921715	P688-1	DF-104	PTE6P1		6TM-P1	Vert. Sweep Coupling
C63	.01	400	922514	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Vert. Sweep Coupling
C64	.01	400	922514	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Horiz. Sync. Coupling
C65	82	500	910058						Horiz. Sync. Coupling
C66	82	500	910058						Horiz. Feedback
C67	.047	400	922554	P488-047	DF-503	PTE4S47		4TM-S47	Horiz. AFC Plate
C68	.047	400	921554	P488-047	DF 503	PTE4S47		4TM S47	Horiz. AFC Filter
C69	.02	200	921324	P488-02	DF-203	P12S2		2TM-S2	Horiz. AFC Filter
C70	.5	200	921355	P288-5		P12P5		2TM-P5	Horiz. AFC Filter
C71	270	500	910048	1469-0003		5RS73		MS-33	Horiz. Osc. Grid Cap
C72	.01	600	921041	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Fixed Trimmer
C73	820	500	910218						Horiz. Discharge
C74	.001	600	921613	P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	Horiz. Sync. Plate
C75	.1	400	921515	P488-1	DF-104	PTE4P1		4TM-P1	Horiz. Output Screen
C76	.5	200	921355	P288-5		P12P5		2TM-P5	Horiz. Output Cathode
C77	.25	300	923305	P488-25		P12P25		3TM-P25	Horiz. Sweep Coupling
C78	.1	600	92715	P688-1		PTE6P1		6TM-P1	Damper Filter
C79	.01	600	921714	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	RF Bypass
C80	500	20000	923016	HV20C	TV3-503	MM-C20T5			HV Filter
C81	.047	400	922200	489GZXY-05		PJ4S47		4TM-S47	Line Filter
C82	.047	400	922200	489GZXY-05		PJ4S47		4TM-S47	Line Filter

* Not used in all models
† Some models use 220MMF in this application (Part #910028)
¶ Alternate Part #925197
ϕ Alternate Part #925198

CONTROLS

ITEM No	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	REPLACEMENT DATA: CENTRALAB PART No.	INSTALLATION NOTES
				Concentrikit			
R1A	1500Ω	½	390184	B17-110 *	RTV-206	SBB-701-S	Contrast Control - Panel
B	1Meg	½		B13-107 *			Volume Control - Rear
C	Shaft end		Not Req.	E187 *			Attach per instructions in Concentrikit
D	Switch		Not Req.	76-1 *			Attach per instructions in Concentrikit
R2A	200KΩ	½	390183	QU-129	AG-52-S	B-46	Brightness Control
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Attach to R2A per instructions
R4A	50KΩ	½	390184	QU-123	AG-44-S	AN-31	Horiz. Hold Control
B	Shaft		Not Req.	Not Req.	RS-2	AK-4	Attach to R4A per instructions
R5A	2Meg	½	390142	QU-139	AG-83-S	AN-75	Vert. Size Control
B	Shaft		Not Req.	Not Req.	FK3-1/4	AK-1	Attach to R5A per instructions
R6	5000Ω	2	390143	W-5000	43-5000	VK-135	Vert. Linearity Control- Wire Wound
R7	1.5Meg	½	390202				Fringe Compensator Control

* Additional Parts to be used with Concentrikit

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE NOTED
R8	47KΩ 20%	½		BTS-47K	AGC Network
R9	22kΩ 20%	½			Antenna Coil Shunt
R10	220KΩ	½		BTS-220K	RF Amp. Grid
R11	1000Ω 20%	½		BTS-1000	RF Amp. Plate Decoupling
R12	2200Ω	½		BTS-220K	Voltage Divider
R13	4700Ω	½		BTS-4700	Mixer Grid
R14	220KΩ	½		BTS-220K	Mixer Grid
R15	10KΩ	½			Mixer Plate
R16	10Ω	½			Parasitic Suppressor
R17	10KΩ	½			Osc. Plate
R18	10KΩ	½			Osc. Grid
R19	220Ω	½	340333	BTS-220	Decoupling
R20	580Ω 20%	½	340432	BTS-560	Decoupling - See Note 1
R21	580Ω 20%	½	340432	BTS-560	AGC Network - See Note 1
R22	560Ω 20%	½	340432	BTS-560	AGC Network - See Note 1
R23	5600Ω	½	340672	BTS-5600	1st. Video IF Coil Shunt
R24	68Ω	½	340212		1st. Video IF Amp. Cathode
R25	560Ω 20%	½	340432	BTS-560	1st. Video IF Amp. Decoupling - See Note 1
R26	8200Ω	½	340712		2nd. Video IF Coil Shunt - See Note 2
R27	5600Ω	½	340672		2nd. Video IF Coil Shunt - See Note 3
R28	220Ω	½	340333	BTS-220	2nd. Video IF Amp. Cathode
R29	560Ω 20%	½	340432	BTS-560	2nd. Video IF Amp. Decoupling - See Note 1
R30	1Meg 20%	½	351212	BTS-1Meg	AGC Network
R31	8200Ω	½	340712		3rd. Video IF Coil Shunt
R32	220Ω	½	340332	BTS-220	3rd. Video IF Amp. Cathode
R33	560Ω 20%	½	340432	BTS-560	3rd. Video IF Screen - See Note 1
R34	1000Ω	½	340492	BTS-1000	3rd. Video IF Plate Decoupling
R35	1Meg 20%	½	351212	BTS-1Meg	AGC Network
R36	1Meg 20%	½	351212	BTS-1Meg	AGC Network
R37	4700Ω	½	340652	BTS-4700	Video Det. Diode Load
R38	33kΩ	½	340852	BTS-33K	Video Peaking Coil Shunt
R39	22kΩ	½	340812	BTS-22K	Video Peaking Coil Shunt
R40	5600Ω	2	780672	BTD-5600	Video Output Plate
R41	470KΩ 20%	½	351132	BTS-470K	Picture Tube Cathode
R42	470KΩ 20%	½	351132	BTS-470K	Voltage Divider

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R43	470KΩ 20%	½	351132	BTS-470K	ACC Anode Load
R44	8200Ω	½	340712		Sound IF Coil Shunt - See Note 2
R45	5600Ω	½	340672		Sound IF Coil Shunt - See Note 3
R46	220Ω	½	340332	BTS-220	Sound IF Amp. Cathode
R47	560Ω	½	340432	BTS-560	Sound IF Amp. Decoupling - See Note 1.
R48	1Meg 20%	½	351212	BTS-1Meg	AVC Network
R49	47KΩ	½	340692		Limiter Grid
R50	10KΩ	½	340732		Limiter Screen
R51	15KΩ	1	370772		Limiter Screen
R52	10KΩ	½	340732		Voltage Divider
R53	10Meg 20%	½	351452	BTS-10Meg	Delayed AGC Network
R54	560Ω 20%	½	340432	BTS-560	Limiter Decoupling - See Note 1
R55	100KΩ	½	340972	BTS-100K	Discriminator Diode Load
R56	100KΩ	½	340972	BTS-100K	Discriminator Diode Load
R57	68KΩ	½	340932	BTS-68K	De-emphasis
R58	10Meg 20%	½	351452	BTS-10Meg	AF Amp. Grid
R59	220KΩ	½	341052	BTS-220K	AF Amp. Plate
R60	470KΩ 20%	½	351132	BTS-470K	Output Grid
R61	470Ω	1	370412	BTA-470	Output Cathode
R62	1500Ω	2	780532	BTB-1500	Output Decoupling
R63	100KΩ	½	340972	BTS-100K	Sync. Clamper Load
R64	10KΩ	½	340732	BTS-10K	Vert. Sync. Amp. Grid
R65	33KΩ	1	370852	BTA-33K	Vert. Sync. Amp. Plate
R66	1Meg 20%	½	351212	BTS-1Meg	Video Output Grid
R67	100KΩ	½	340972	BTS-100K	Vert. Sync. Seperator Grid
R68	10Meg 20%	½	351452	BTS-10Meg	Vert. Sync. Seperator Plate
R69	150Ω	½	340292	BTS-150	Vert. MV Grid
R70	2200Ω	½	340972	BTS-2200	Vert. MV Cathode
R71	150KΩ	½	341013	BTS-150K	Vert. MV Plate
R72	1.5Meg	½		BTS-1.5Meg	Vert. MV Plate
R73	680KΩ	½	341172	BTS-680K	Vert. MV Grid
R74	12KΩ	½	340752	BTS-12K	Vert. Peaking
R75	2.2Meg	½	341292	BTS-2.2Meg	Vert. Output Grid
R76	560Ω 20%	½	340432	BTS-560	Vert. Output Cathode - See Note 1
R77	47KΩ	½	340892	BTS-47K	Decoupling
R78	10KΩ	½	340732	BTS-10K	Voltage Divider
R79	47KΩ	½	370832	BTS-47K	Horiz. Sync. Amp. Plate
R80	2.2Meg	½	341292	BTS-2.2Meg	Horiz. Sync. Amp. Grid
R81	22KΩ	½	370812	BTA-22K	Horiz. Sync. Seperator Plate
R82	2.2Meg	½	341292	BTS-2.2Meg	Isolation of Seperator Grid
R83	4700Ω	½	340852	BTS-4700	Voltage Divider
R84	10KΩ	½	340732	BTS-10K	Voltage Divider
R85	100KΩ	½	340972	BTS-100K	Voltage Divider
R86	330KΩ	½	341092	BTS-330K	Horiz. AFC Grid
R87	820KΩ	½	341192	BTS-820K	Horiz. AFC Grid
R88	82KΩ	½	340952	BTS-82K	Horiz AFC Cathode
R89	39000Ω	½	340832	BTS-3900	Horiz AFC Filter
R90	150KΩ	½	341012	BTS-150K	Horiz. Feedback
R91	47KΩ	½	340892	BTS-47K	Horiz. Osc. Plate
R92	180KΩ	½	341032	BTS-180K	Voltage Divider
R93	100KΩ	½	340972	BTS 100K	Decoupling
R94	150KΩ 5%	½	331012	BTS-150K 5%	Horiz. Osc. Grid
R95	330KΩ 5%	½	331092	BTS-330K 5%	Horiz. AFC Cathode
R96	8200Ω	½	340712	BTS 8200	Horiz AFC Coil Shunt
R97	470KΩ 20%	½	341132	BTS-470K	Horiz. Output Grid
R98	1000Ω	2	780252	BW-2-100	Horiz. Output Cathode
R99	6800Ω	2	780692	BTB-6800	Horiz. Output Screen
R100	68Ω	½	340212		Parasitic Suppressor
R101	68Ω	½	340212		Horiz. Linearity Network
R102	100KΩ	½	340972	BTS-100K	Bias Network
R103	9.5Ω	5	394122		Bias Network - Wire Wound
R104	250Ω	10	394116	13/4A-1250	Filter - Wire Wound
R105	100KΩ	1	370972	BTA-100K	Line Isolation
R106	100KΩ	½	340972	BTS-100K	Vert. Blanking Network

Note 1. Some Models use a 470Ω Resistor in this application
Note 2. Some Models use a 15KΩ Resistor in this application
Note 3. Not used in all Models

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No	REPLACEMENT DATA: CHICAGO PART No.
T1	117VAC @ 1.85A	530VCT @ .235ADC	12.6VCT @ 5A	6.3VAC @ 1.2A	730033	P-8169 ①	P-3066 ①	

① Add series resistor to reduce high voltage

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No	REPLACEMENT DATA: CHICAGO PART No	NOTES
T2	750Ω Tapped @ 30Ω	46Ω Tapped @ 5Ω & 17Ω BFC 2 01Ω	738089		HV5-7		Hor. Output Trans.
T3	238Ω Tapped @ 8Ω		738070	A-8123 ②	A-3038		Vert. Output Trans.
T4	28Ω		708137		MDF-71		Hor. Deflection Coils
B	46Ω						Vert. Deflection Coils

② Drill one new mounting hole

EMERSON MODEL 709A (Ch. 120162-A)

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T5	5.2Ω	3.6Ω	330Ω	.7Ω	734051	A-3823	A-3019	RO-303	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	EMERSON PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	P.M.	3.6Ω	180041C 180041 ②	ST-108 Mod. P6-X	6A1	② Alternate Speaker
	CONE DIA.	V. C. DIA.				
SP1B	6"	9/16"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∽)	EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.235ADC	75Ω	1.5 Henries	737J16 737017 ③	C-2326 ④	C-2991 ④	TR-3300④	③ Alternate Choke ④ Drill One New Mounting Hole.

COILS (RF-IF)

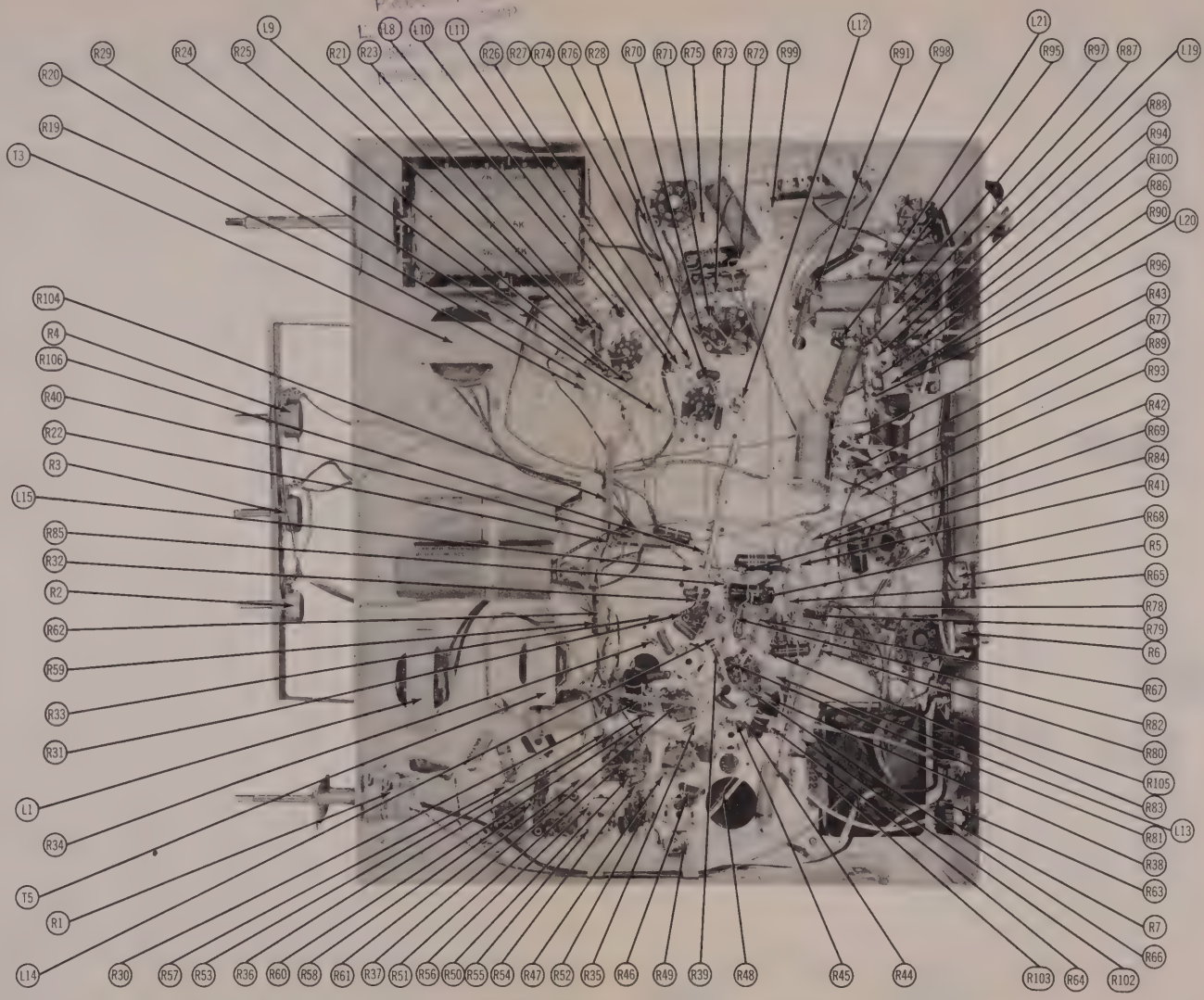
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	EMERSON PART No.	MERIT PART No.	
L2	Ant. Coils	0Ω				
L3	Fil. Choke	0Ω				
L4	RF Choke	0Ω				
L5	RF, Mixer Grid and Osc. Coils	0Ω				
L6	Fil. Choke	0Ω				
L7	Conv. Plate	.5Ω				
L8	1st. Video IF	.1Ω	.5Ω	720131		
L9	21.25MC Sound Trap	0Ω		720151	TV-151	
L10	2nd. Video IF	.4Ω	.4Ω	720139		Includes 27.25MC Trap
L11	3rd. Video IF	.2Ω	.2Ω	720133		Includes 21.25MC Trap
L12	4th. Video IF	.8Ω	.8Ω	720127		
L13	Peaking Coil	7.2Ω		708100		250 Microhenries
L14	Peaking Coil	7.2Ω		708100		250 Microhenries
L15	Peaking Coil	15Ω		708114		440 Microhenries
L16	1st. Sound IF	8.2Ω	3Ω	720141		
L17	2nd. Sound IF	1.6Ω	1.6Ω	720081		
L18	Discr. Trans	1.6Ω	1.4Ω	708018		Alternate Part #708017, Tap ⓐ .7Ω
L19	Horiz. Osc.	110Ω		716052		Tap ⓐ 34Ω
L20	Horiz. Phase	28Ω		738065		
L21	Horiz. Size	5Ω		708068		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			EMERSON PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG Pigtail	½ A 250V.			318.500		GJV-½	

MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
M2	RF Tuner	470681	
M3	Focus Magnet	708136	
M4	Ion Trap	708075	
	Knob	450138	Contrast
	Knob	450137	Fine Tuning
	Knob	450134	Off/On Volume (Shank)
	Knob	460262	Off/On Volume (Flange)
	Knob	450133	Channel Selector (Shank)
	Knob	460261	Channel Selector (Flange)

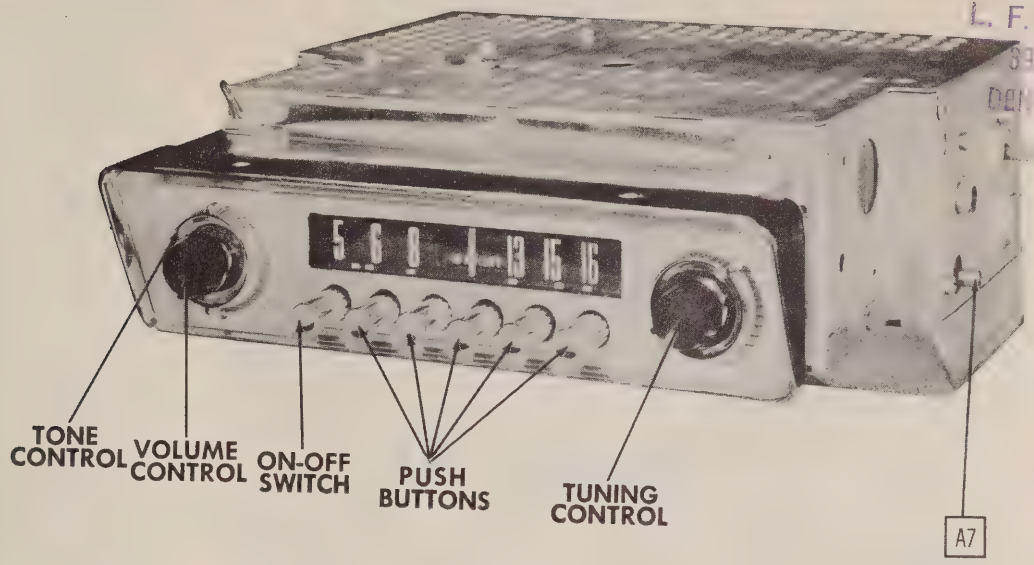


CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

FORD MODELS 2CF754 (FAC-18805-B), 2CH753 (FAA-18805-A), 2CM752 (FAB-18805-A)

PROPERTY OF
L. F. BLANKENSHIP
3870 MEADE ST
DENVER, COLORADO

FORD MODELS 2CF754 (FAC-18805-B), 2CH753 (FAA-18805-A), 2CM752 (FAB-18805-A)



FORD MODELS 2CF754 (FAC-18805-B), 2CH753 (FAA-18805-A), 2CM752 (FAB-18805-A)

FORD MODEL 2CF754

TRADE NAME	Ford Model 2CF754 (FAC-18805-B), Lincoln Model 2CH753 (FAA-18805-A), Mercury 2CM752(FAB-18805-A)
MANUFACTURER	Sylvania Electric Prod., Inc., Radio & Television Div., 1292 Niagara St., Buffalo, N.Y.
TYPE SET	Battery Operated Custom Built Automobile Superheterodyne Receiver
TUBES (EIGHT)	Types 6BA6 RF Amp., 6BE6 Conv., 6BA6 IF Amp., 6AV6 Det.-AF Amp., 6AV6 AVC-Phase Inv., (2) 6V6GT Audio Output, 6X5GT Rectifier.
POWER SUPPLY	6 Volt Storage Battery — RATING 7.8 Amp. @ 6.3 Volts DC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Rotate tone control to full clockwise position.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to Pin 7 (Converter Grid) 6BE6 (V2). Low side to chassis.	265KC (400~ Mod.)	Point of non-interference	Across voice coil.	A1, A2 A3, A4	Adjust in order given for maximum Output.
2.	Fig. 1	High side through dummy to antenna socket. Low side to chassis.	1610KC	Tune manually to high freq. stop.	"	A5, A6 A7	Adjust for max. output. Turn "Pointer Adjust" screw, if necessary, for correct dial calibration.

The following adjustments should be made only in the event that a core or coil has been replaced or tampered with.

2A	Fig. 1	High side through dummy to antenna socket. Low side to chassis.	1610KC	Tune manually to extreme high frequency end of dial.	Across voice coil.	A5, A6 A7	Adjust A5, A6, A7 after screwing the cores completely out of the antenna coil, the converter coil, and the oscillator coil. Adjust in order given for maximum output.
3.	"	"	1000KC	1000KC	"	A8, A9 A10	Adjust in order given for maximum output.
4.	"	"	1605KC	Tune manually to high freq. stop.	"		If the high frequency tuning range is more or less than 1605KC A5, A6, & A7 should be adjusted to limit the frequency coverage to 1605KC.

With Receiver installed and antenna extended to maximum height. Check the antenna trimmer adjustment for maximum volume on a weak station near 1400KC.

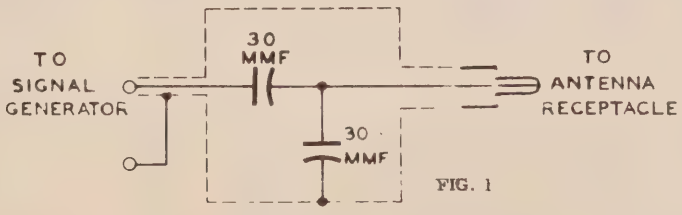


FIG. 1

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		SYLVANIA PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	6BA6	6BA6	7BK	
V2	Converter	6BE6	6BE6	7CH	
V3	IF Amplifier	6BA6	6BA6	7BK	
V4	Det. AF-Amp.	6AV6	6AV6	7BT	
V5	AVC-Phase Inv.	6AV6	6AV6	7BT	
V6	Audio Output	6V6GT	6V6GT	7AC	
V7	Audio Output	6V6GT	6V6GT	7AC	
V8	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	SYLVANIA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	20	350	161-3005	AFH3-107		UP2235C		TVL-3678	■ Filter
B	20	350							▲ Filter
C	20	25							Audio Output Cathode
C2	10000		168-00027	BPD-01	DD-103	TM5S1	821-01	5HK-S1	RF Coupling †
C3	150	500	164-0150	1469-00015		5R5T15		MS-315	AVC Filter ‡
C4	.022	200	160-02122		DF-203	PTE4S22		4TN-S22	AVC Filter
C5	.1	400	160-0401	P488-1	DF-104	PTE4P1		4TM-P1	Screen Bypass
C6	33		163-0033	SI33NP0	TCZ-33		NP0K-330	5TCC-Q33	RF Coupling
C7	18	500	164-0018			5R5Q2		MS-42	Fixed Trimmer
C8	230		165-0230A						Fixed Trimmer
C9	.1	200	160-0201	P288-1	DF-104	PJ2P1		2TM-P1	IF Amp. Cathode
C10	10	500	164-0010	1468-00001	D6-100	5W5Q1	GP1K-100	MS-41	IF Coupling
C11	.022	400	160-02122	P488-022	DF-203	PTE4S22		4TM-S22	AVC Filter
C12	250	500	163-0250	1468-00025	D6-251	5W5T25	GP2K-251	1FM-325	Tone Comp.
C13	250	500	163-0250	1468-00025	D6-251	5W5T25	GP2K-251	1FM-325	Tone Comp.
C14	.0022	400	160-06222	P688-0022	D6-222	PTE6D22	GP2-333-222	6TM-D22	Tone Comp.
C15	.0015	400	160-06215	P688-0015	D6-152	PTE6D15	GP2L-152	6TM-D15	Tone Comp.
C16	.0056	400	160-04256		D6-562		GP2-333-562		Audio Coupling
C17	220	500	163-0220	1468-00025	D6-221	5W5T25	GP2K-221	1FM-325	AF Amp. Plate Bypass
C18	.022	600	160-06122	P688-022	DF-203	PTE6S22		6TM-S22	Audio Coupling
C19	10000		168-0002D	BPD-01	DD-103	TM5S1	821-01	5HK-S1	Audio Coupling
C20	220	500	163-0220	1468-00025	D6-221	5W5T25	GP2K-221		Phase Inv. Plate Bypass
C21	.022	600	160-06122	P688-022	DF-203	PTE6S22		6TM-S22	Audio Coupling
C22	.0082	1600	160-16282			PTE16D8		MB-D8	Buffer Cap.
C23	.5	100	169-0001	P185-.5		PJ2P5		68P20	Fil. Bypass
C24	250	500	163-0250	1468-00025	D6-251	5W5T25	GP2K-251	1FM-325	Fil. Bypass ¶

† Model FAA-18805-A uses 5000MMF in this application (Part No. 166-5000D)
‡ Model FAA-18805-A uses 100MMF in this application (Part No. 164-0100
¶ Model FAC-18805-B only

CONTROLS

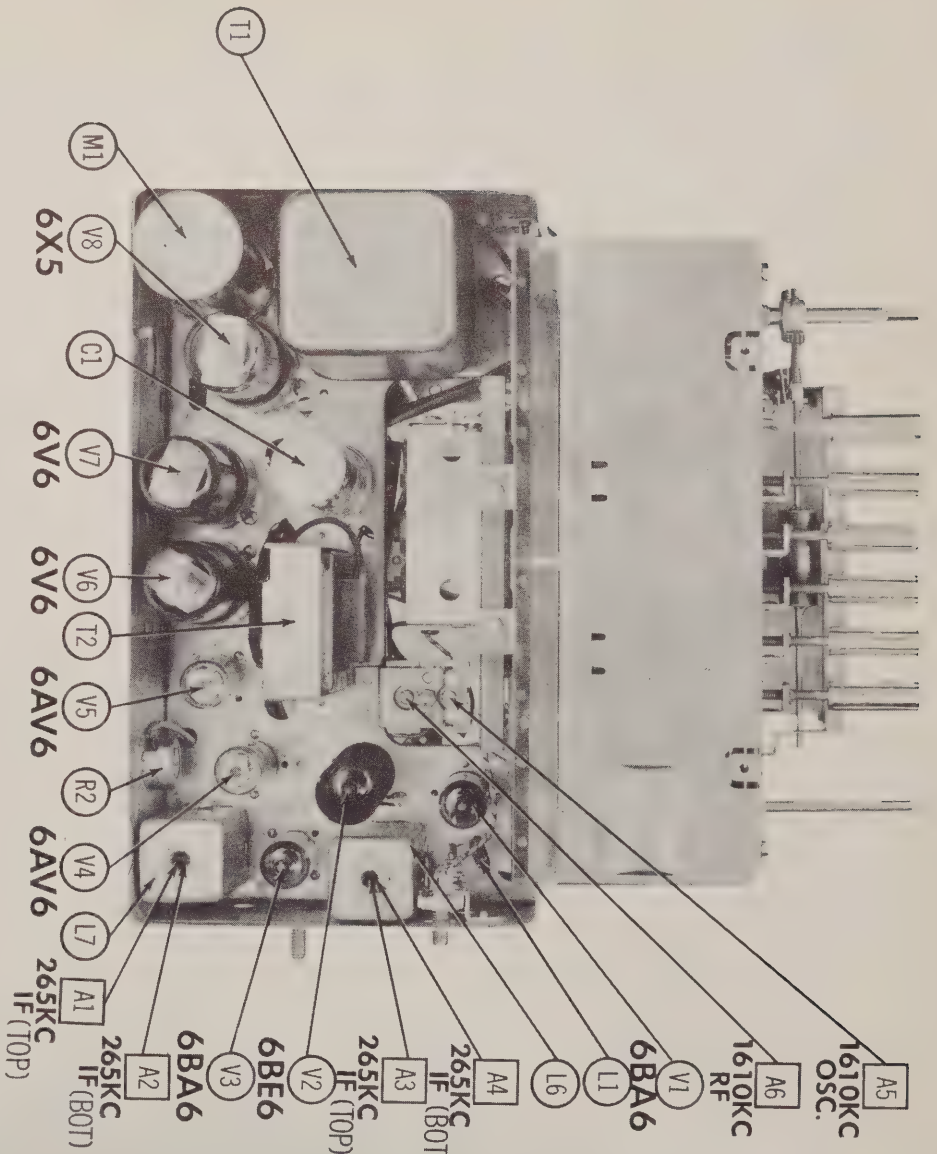
ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	SYLVANIA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	Switch		1520016				Tone SW - Panel - See Note
B	350KΩ	½					Volume Control - Tapped@100KΩ - Rear
R2	2000Ω	1	159-0004				Sensitivity Control - Wire Wound

Note. Model #2CM752 uses volume control & Tone SW (Part #152-0014)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	SYLVANIA PART No.	IRC PART No.	
R3	1Meg	½	181-0105	BTS-1Meg	AVC Network
R4	10KΩ	1	182-0103	BTA-10K	RF Amp. Plate
R5	330KΩ	½	181-0334		Mixer Grid
R6	47KΩ	½	181-0473		Osc. Grid
R7	15Meg	½	181-0156	BTS-15Meg	AVC Network
R8	120Ω	½	181-0121	BTS-120	IF Amp. Cathode
R9	12KΩ	2	183-0123	BTB-12K	Screen Dropping
R10	39KΩ	½	181-0393	BTS-39K	Voltage Divider
R11	100KΩ	½	181-0104	BTS-100K	Tone Compensation
R12	220KΩ	½	181-0224	BTS-220K	Tone Compensation
R13	100KΩ	½	181-0104	BTS-100K	Tone Compensation

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

R14	470KΩ	½	181-0474	BTS-470K	Diode Load
R15	47Ω	½	181-0470		AF Amp. Cathode
R16	15Meg	½	181-0156	BTS-15Meg	AF Amp. Grid
R17	330KΩ	½	181-0334	BTS-330K	AF Amp. Plate
R18	1500Ω	½	181-0152	BTS-1500	Feedback Network
R19	1Meg	½	181-0105	BTS-1Meg	AVC Diode Load
R20	1Meg	½	181-0105	BTS-1Meg	AVC Network
R21	1Meg	½	181-0105	BTS-1Meg	AVC Network
R22	2700Ω	½	181-0272	BTS-2700	Phase Inv. Cathode
R23	6.8Meg	½	181-0685	BTS-6.8Meg	Phase Inv. Grid
R24	68KΩ	½	181-0683	BTS-68K	Phase Inv. Grid
R25	330KΩ	½	181-0334	BTS-330K	Phase Inv.Plate
R26	150KΩ	½	181-0154	BTS-150K	Output Grid
R27	47KΩ	½	181-0473	BTS-47K	Output Grid
R28	220KΩ	½	181-0224	BTS-220K	Output Grid
R29	330Ω	1	189-0011	BTA-330	Output Cathode
R30	1800Ω	2	183-0182	BTB-1800	Filter
R31	82Ω	½	181-0820	BTS-82	Hash Suppressor
R32	82Ω	½	181-0820	BTS-82	Hash Suppressor
R33	27Ω	1	182-0270		Voice Coil Shunt - See Note 1

Note 1. Used only in Models 2CH753 & 2CM752

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	SYLVANIA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	6.3VDC @4.5ADC	624VCT .068ADC			511-0001			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SYLVANIA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	8KΩ CT	3.2Ω	422Ω CT	.23Ω	143-0012	A-3852			

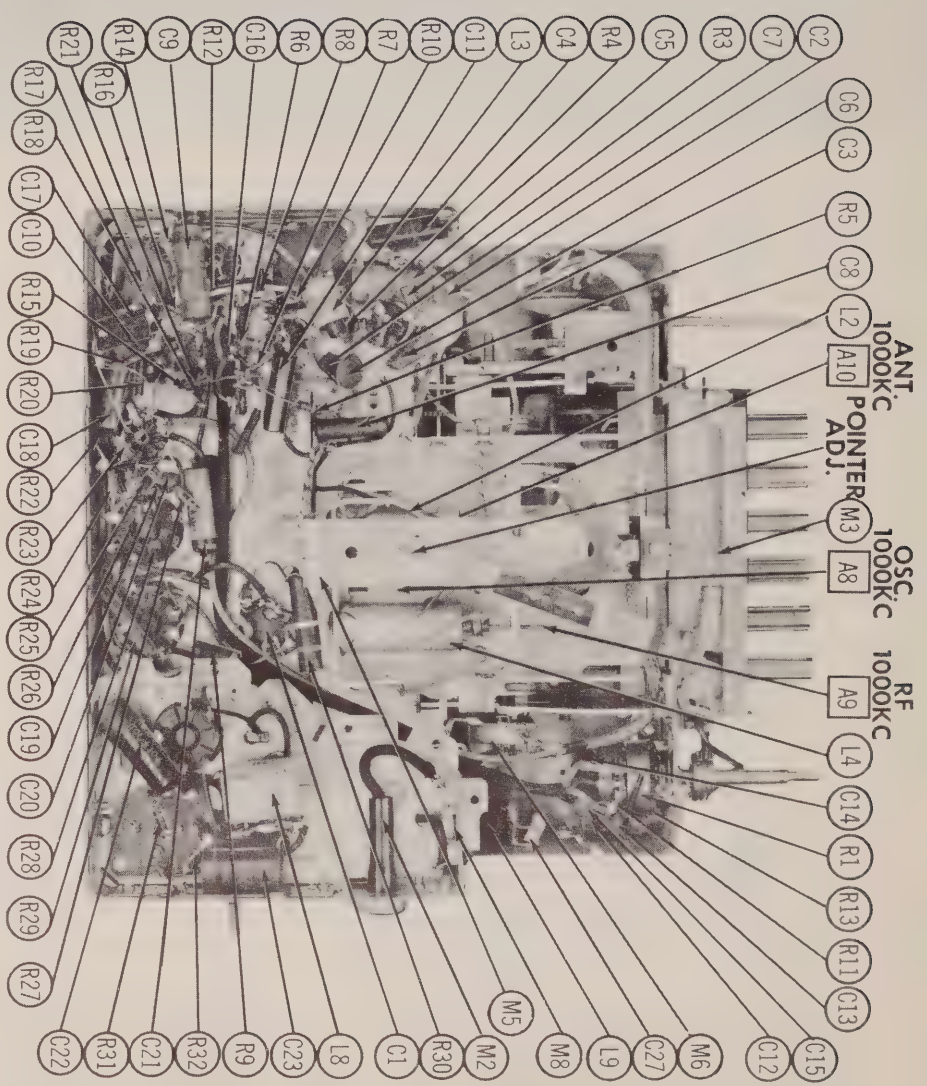
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	PM	3-4Ω	539-0001	ST-810 Mod. P69-V	69A3	Model 2CF754
SP2A	EM	3-4Ω	538-6901			Alternate - Model 2CF754
SP3A	PM	3-4Ω	539-0005			Model 2CM752
SP4A	EM	3-4Ω	538-6902			Alternate - Model 2CM752
SP5A	EM	3-4Ω	538-5701			Model 2CH753
SP6A	PM	3-4Ω	539-6901			Model 2CH753 - Rear Seat
	CONE DIA.	V.C. DIA.				
SP1B	6"X9"	3/4"				
SP2B	6"X9"	3/4"				
SP3B	6"X9"	3/4"				
SP4B	6"X9"	3/4"				
SP5B	5"X7"	9/16"				
SP6B	6"X9"	3/4"				

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	SYLVANIA PART No.	MERIT PART No.	
L1	Ant Hash Choke	.7Ω		148-0001		
L2	Ant. Coil	10.2Ω		111-0013		
L3	IF Trap			118-0008		
L4	RF Coil	10.2Ω		112-0010		
L5	Osc. Coil	.8Ω	4.1Ω	113-0022		
L6	Input IF	37Ω	37Ω	121-0019		
L7	Output IF	44Ω	44Ω	122-0021		
L8	Hash Choke	0Ω		147-0007		
L9	Fil. Choke	0Ω		145-0005		

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA			INSTALLATION NOTES
				SYLVANIA PART No.	CORNELL-DUBILIER PART No.	RADIART PART No.	
M1	Interrupter	6.3V	115CPS	511-0001	5301	5301	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			SYLVANIA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	SFE	14A.	191-0002	562-0006	307014	155014	SFE14	HRI

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					SYLVANIA PART No.		
M3	Bayonet	6-8	.25	Blue	611-0044		Type #44
M4	Bayonet	6-8	.25	Blue	611-0044		Type #44 (Used in Lincoln & Mercury Models only)

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M5A	Tuner Unit	313-0021	Ford Model 2CF754
B	Tuner Unit	313-0022	Mercury Model 2CM752
C	Tuner Unit	313-0023	Lincoln Model 2CH753
M6	Switch	571-0004	On/Off
M7	Switch	577-0003	Dial Light (Used in Ford & Mercury Models Only)
M8	Spark Plate	167-0008	Ford, Lincoln & Mercury
M9	Spark Plate	167-0008	Lincoln & Mercury only
M10	Spark Plate	167-0008	Lincoln & Mercury only
A5	Dual Trimmer	173-0002	Osc. Adj. } Includes Fixed Trimmers
A6			RF Adj. }
A7	Trimmer	172-0026	Ant. Adj.
	Dial	722-0023	Mercury
	Dial	722-0024	Ford
	Pointer	791-0021	Ford
	Pointer	791-0022	Lincoln & Mercury

SENSITIVITY CONTROL ADJUSTMENT

The sensitivity control R2 is factory pre-set and should not be readjusted unless it is known to have been tampered with.

To readjust, set the control to obtain 3.5 volts at pin 7 (cathode) of 6BA6 (V3).

PUSH BOTTON ADJUSTMENT

FORD:

A. Collapse the antenna

B. Using the manual control, tune carefully to a desired station near the low frequency end of the broadcast band.

C. Loosen the second push button from the left side by turning it counter clockwise one turn with the fingers.

D. Press the loosened push button all the way in and release.

Tighten the push button as much as possible using ONLY the fingers. The push button is now set for this station.

E. Follow the same procedure for setting each of the four remaining push buttons.

F. Check the push button setting to correspond with the best manually tuned signal for each station.

Repeat steps "B" through "E" is necessary.

MERCURY AND LINCOLN

A. Collapse the antenna.

B. Using the manual control, tune carefully to a desired station near the low frequency end of the broadcast band.

C. Unlock the second push button from the left by pushing the button to the left and pulling it out.

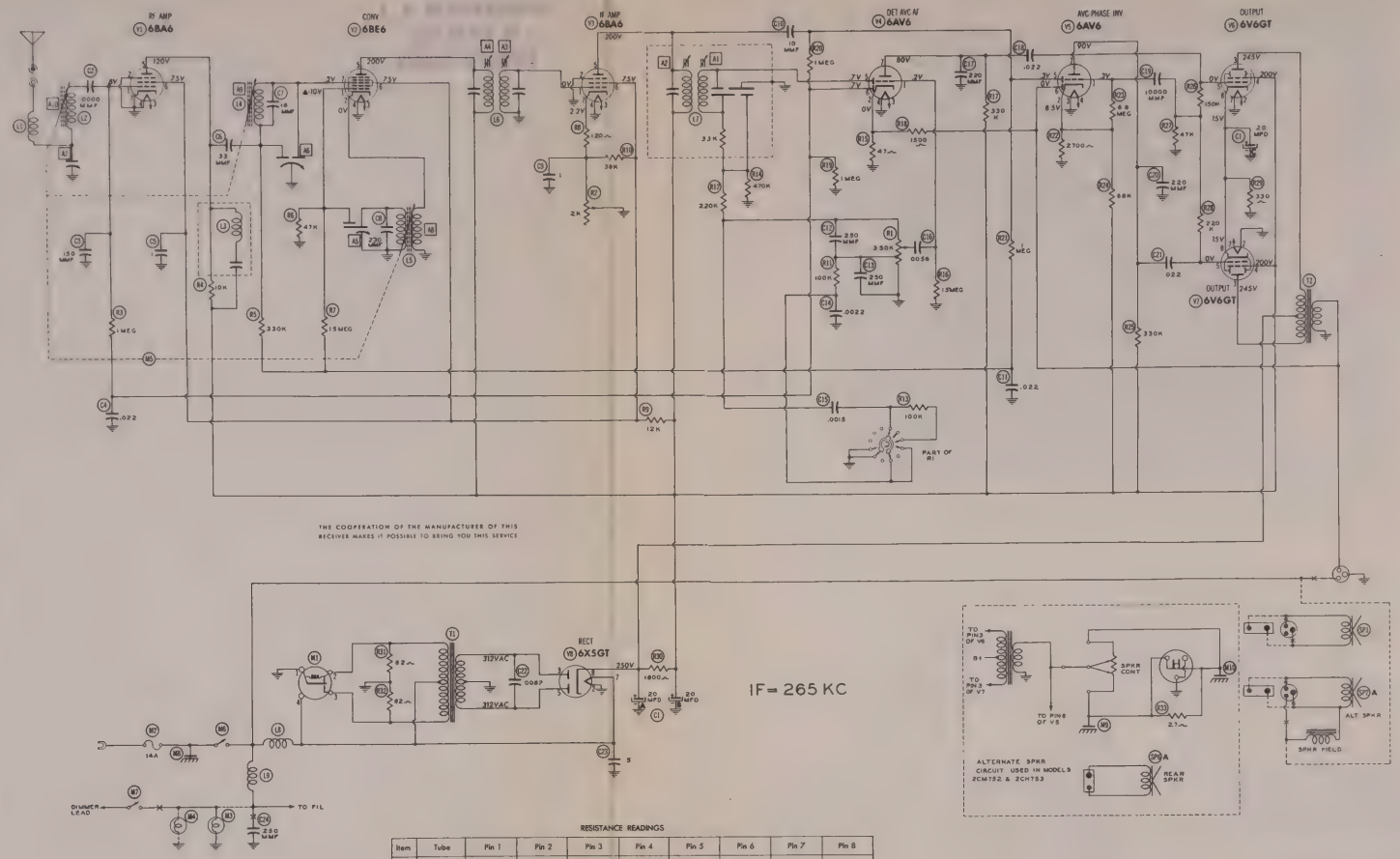
D. Press the unlocked push button all the way in and release.

The push button is now set for this station.

E. Follow the same procedure for setting each of the four remaining push buttons.

F. Check the push button setting to correspond with the best manually tuned signal for each station.

Repeat steps "B" through "E" if necessary.



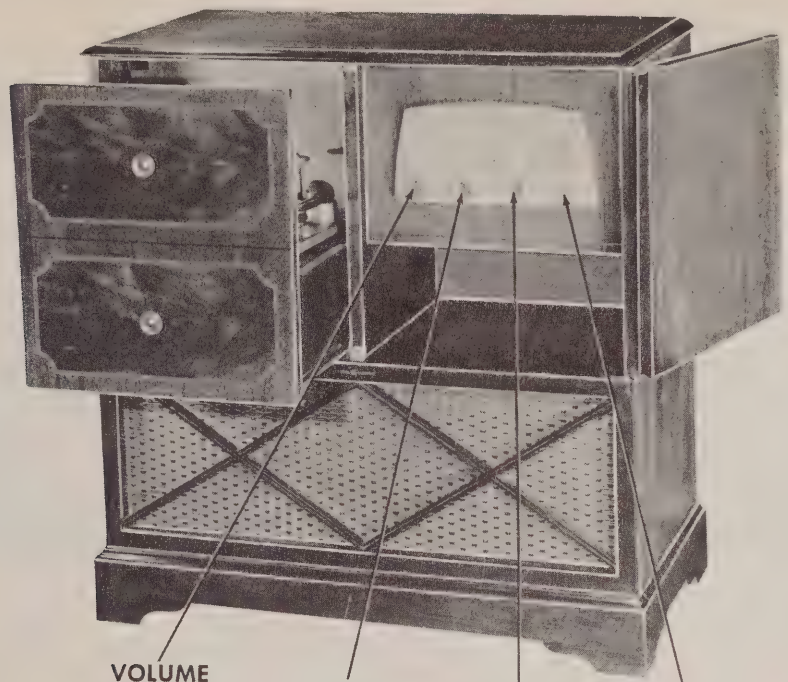
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6BA6	2Meg	0Ω	.4Ω	0Ω	†12KΩ	†14KΩ	0Ω	
V 2	6BE6	47KΩ	.8Ω	.4Ω	0Ω	†1.8KΩ	†14KΩ	2.9Meg	
V 3	6BA6	37Ω	0Ω	.4Ω	0Ω	†1.8KΩ	†14KΩ	280Ω	
V 4	6AV6	15Meg	47Ω	.4Ω	0Ω	340KΩ	1Meg	†330KΩ	
V 5	6AV6	6.8Meg	2.7KΩ	0Ω	.4Ω	2Meg	.1Ω	†330KΩ	
V 6	6V6GT	INF	.4Ω	†21Ω	†1.8KΩ	200KΩ	47KΩ	0Ω	330Ω
V 7	6V6GT	INF	0Ω	†21Ω	†1.8KΩ	210KΩ	†14KΩ	.4Ω	330Ω
V 8	6X5GT	INF	.4Ω	210Ω	INF	198Ω	INF	0Ω	28KΩ

TONE SWITCH IN NORMAL POSITION
† MEASURED FROM PIN 8 OF V8
▲ TAKEN WITH VACUUM TUBE VOLTMETER

1 - DC Voltage measurements are at 20,000 ohms per volt, AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of -15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

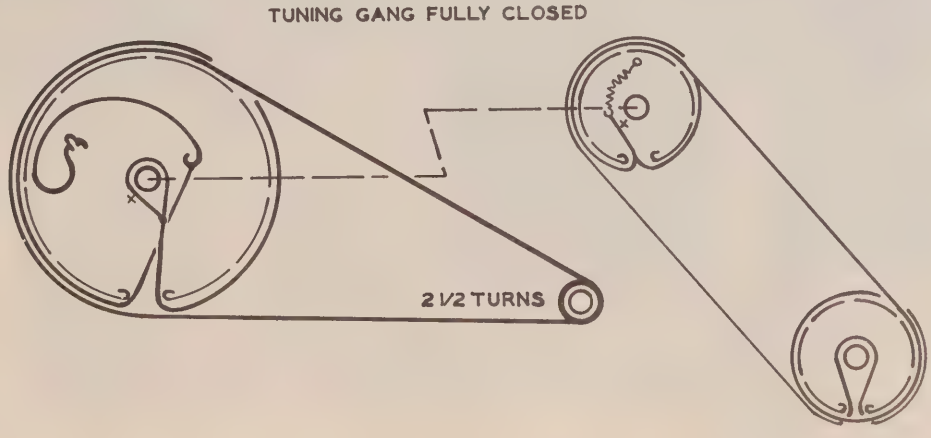
©Howard W. Sams & Co., Inc. 1952



GENERAL ELECTRIC
MODELS 754, 756

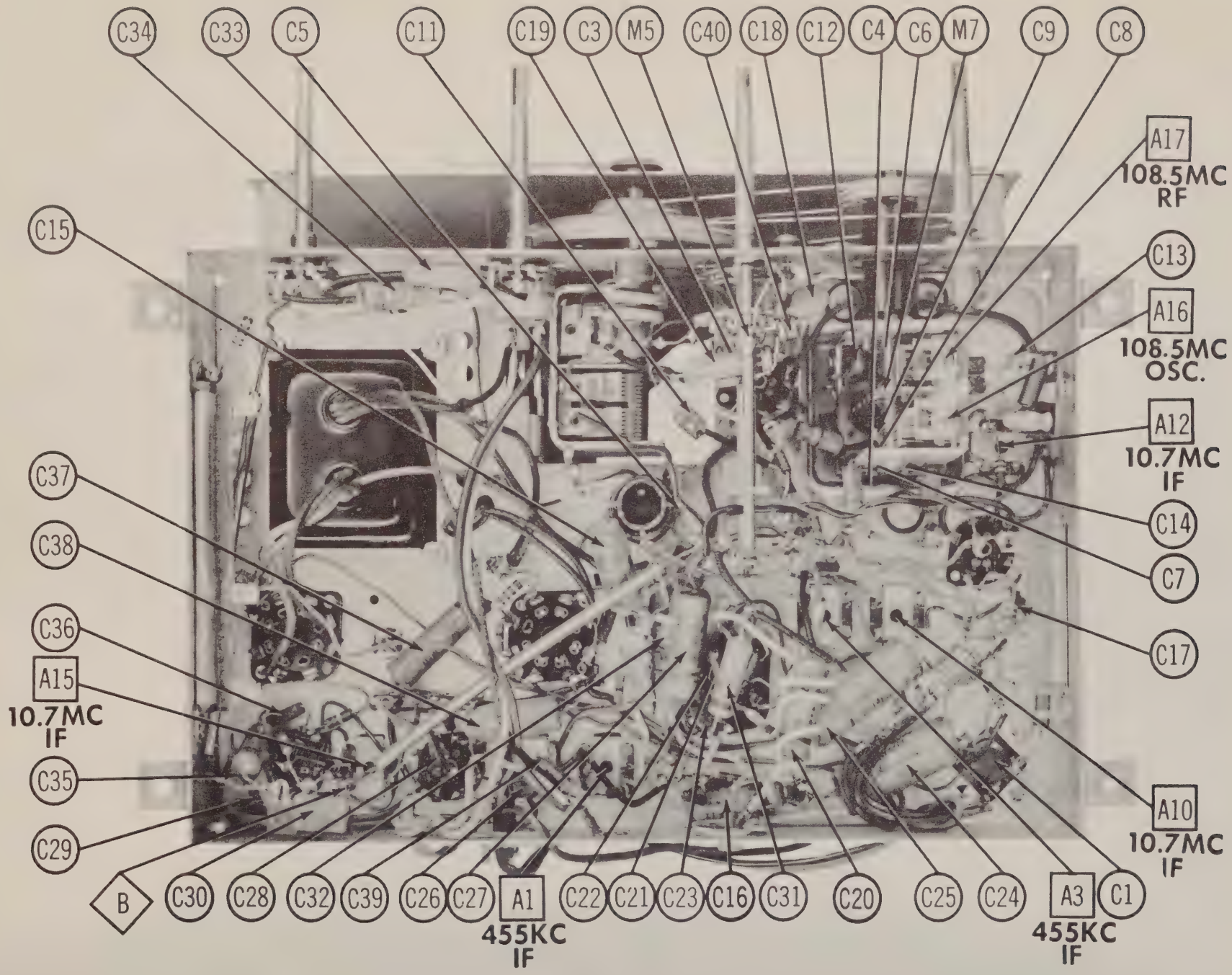
TRADE NAME	General Electric Models 754, 756
MANUFACTURER	General Electric Co., Electronics Dept., Electronics Park, Syracuse, N.Y.
TUBE SET	AC Operated AM-FM-Phono Combination Superheterodyne Receiver
TUBES (Eight)	Types 6BJ6 RF Amp., 12AT7 FM Conv.-AM Osc., 6BA6 FM IF Amp.-AM Mixer, 6AU6 IF Amp.-Phono Pre Amp., 6AU6 Limiter, 6T8 FM Disc.-AM Det.-AF Amp., 6V6GT Audio Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycle
TUNING RANGE-BROADCAST	540-1600 KC RATING .6 Amp. @ 117 Volts AC Freq. Mod. 88-108MC

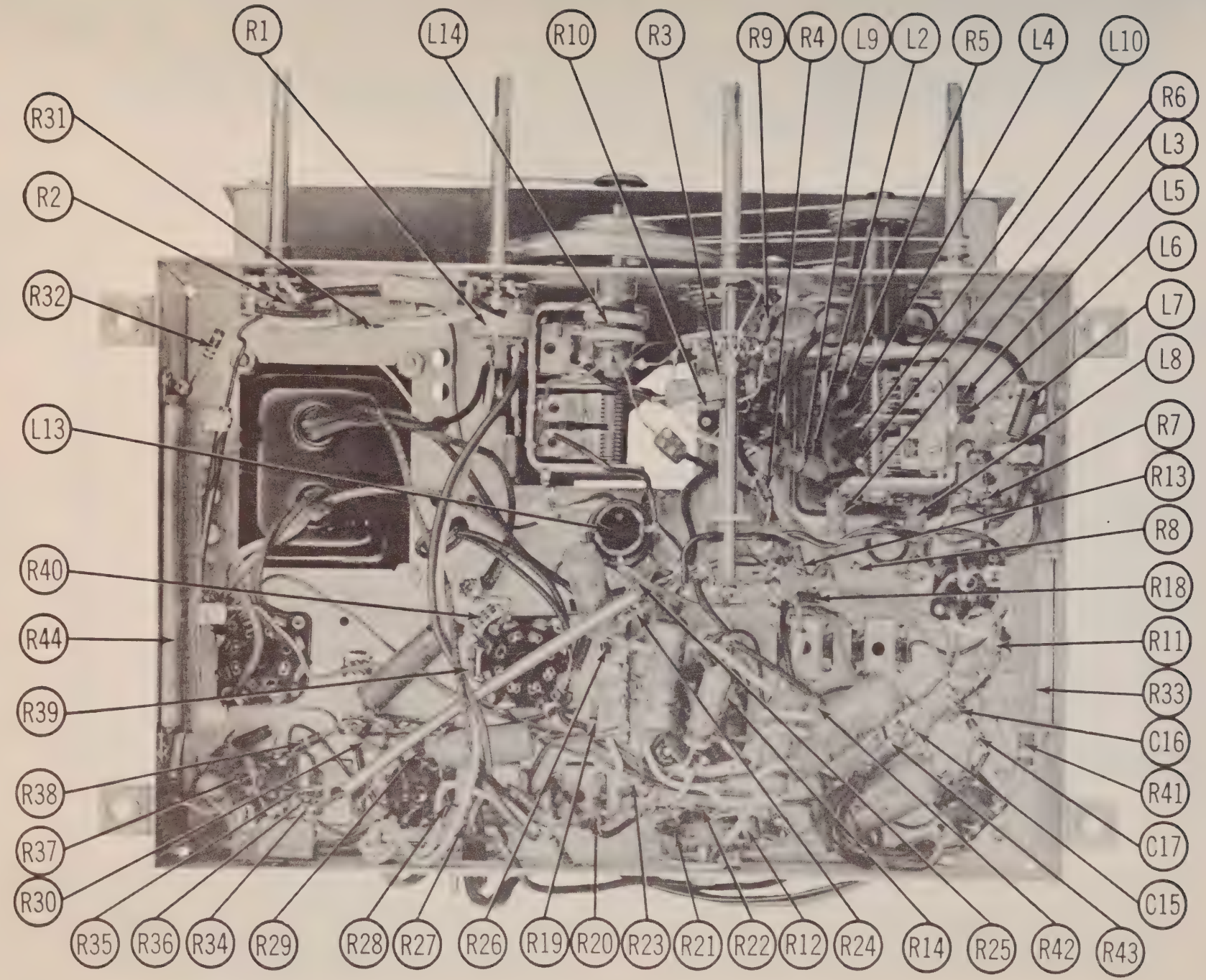
RECORD CHANGER UNIT G.E. MODEL P17 - FOR SIMILAR UNIT SEE WEBSTER MODEL 160 PHOTOFACT SET #135 - FOLDER #14.

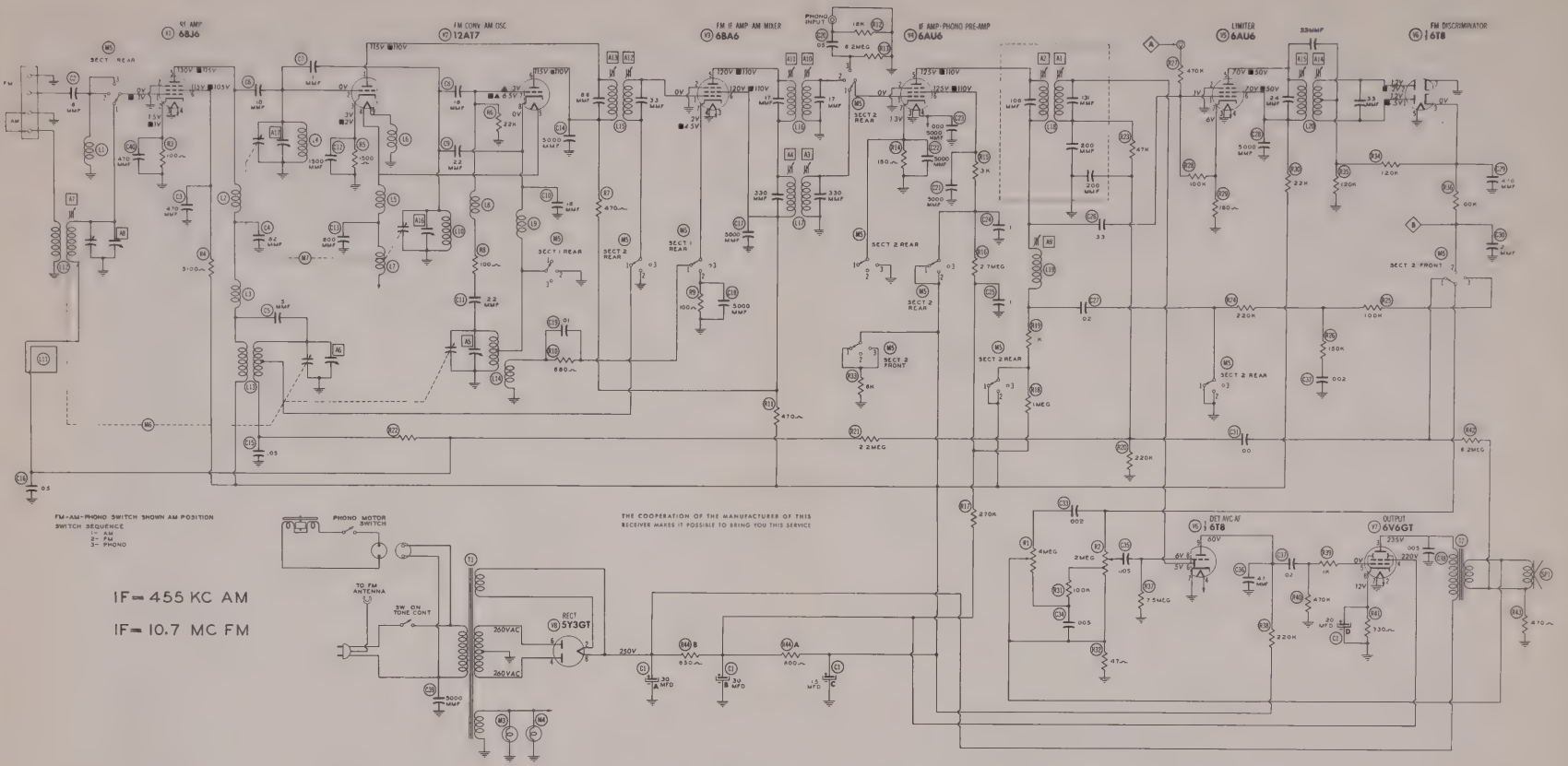


DIAL CORD DRIVE

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America


C34
C33
C5
C11
C19
C3
M5
C40
C18
C12
C4
C6
M7
C9
C8
A17
108.5MC
RF
C15
C13
A16
108.5MC
OSC.
A12
10.7MC
IF
C37
C14
C38
C7
C36
C17
A15
10.7MC
IF
C35
A10
10.7MC
IF
C29
B
C30
C28
C32
C39
C26
C27
A1
455KC
IF
C22
C21
C23
C16
C31
C20
C25
C24
A3
455KC
IF
C1


R1
L14
R10
R3
R9
R4
L9
L2
R5
L4
L10
R6
L3
L5
L6
L7
L8
R7
R13
R8
R18
R11
R33
C16
R41
C17
C15
R43
R42
R25
R14
R24
R12
R22
R21
R23
R20
R19
R26
R27
R28
R29
R34
R36
R35
R30
R37
R38
R39
R44
R40
L13
R32
R2
R31



Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BJ6	.6Ω ■2.4Meg	100Ω	0Ω	.1Ω	†2.4KΩ	†7.5KΩ	0Ω		
V 2	12AT7	†3.4KΩ	.1Ω	1.5KΩ	.6Ω	.6Ω	†3.4KΩ	22KΩ	.8Ω ■2.3Ω	.5Ω
V 3	6BA6	■3.4Meg	0Ω	.1Ω	0Ω	†2.9KΩ	†2.9KΩ	100Ω ■680Ω		
V 4	6AU6	.9Ω ■9Ω	0Ω	0Ω	.1Ω	†3.4KΩ	†5.4KΩ	150Ω		
V 5	6AU6	100KΩ	0Ω	0Ω	.1Ω	†24KΩ	†24KΩ	180Ω		
V 6	6T8	120KΩ	120KΩ	240KΩ	.1Ω	0Ω	265KΩ	0Ω	7.5Meg	†220KΩ
V 7	6V6GT	.1Ω	.1Ω	†540Ω	†650Ω	470KΩ	470KΩ	0Ω	330Ω	
V 8	5Y3GT	INF	200KΩ ■8.5KΩ	INF	90Ω	INF	80Ω	INF	200KΩ ■8.5KΩ	

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS NOTED
■ MEASURED IN AM POSITION
† MEASURED FROM PIN 9 OF V8
▲ TAKEN WITH VACUUM TUBE VOLTMETER

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1952

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

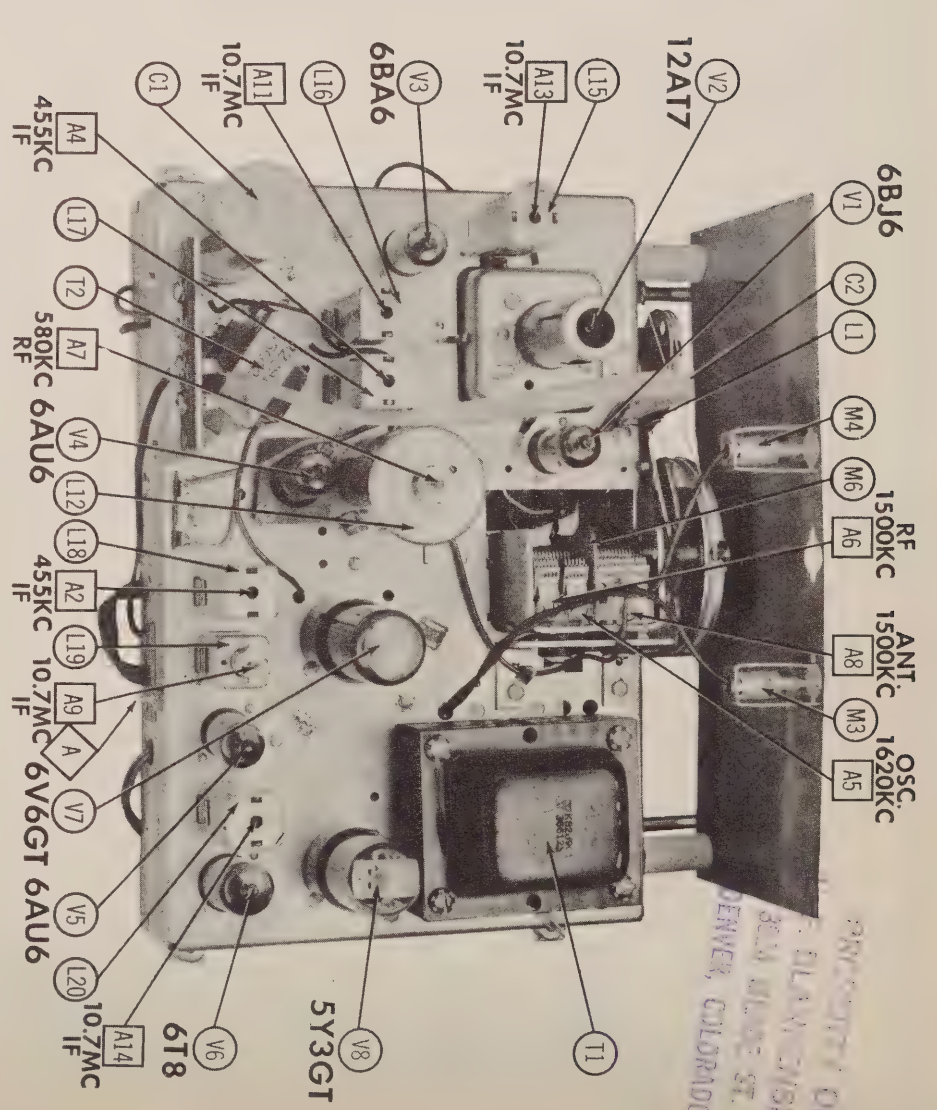
ITEM No.	USE	REPLACEMENT DATA: General Electric PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6BJ6	6BJ6	7CM	
V2	FM Converter - AM Oscillator	12AT7	12AT7	9A	
V3	FM IF Amplifier AM Mixer	6BA6	6BA6	7BK	-
V4	IF Amplifier - Phono Pre Amp.	6AU6	6AU6	7BK	
V5	Limiter	6AU6	6AU6	7BK	
V6	FM Discriminator-AM Detector-AVC-AF Amplifier	6T8	6T8	9E	
V7	Audio Output	6V6GT	6V6GT	7AC	
V8	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: General Electric PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	30	350	RCE-039	AFH4-71		UP33245C		TVL-4742	● Filter
B	30	350							■ Filter
C	15	300							▲ Decoupling
D	20	25							Audio Output Cathode
C2	6	500	RCN-040	1468-000005		5W5V5	GP1K-050	MS-55	FM RF Coupling
C3	470		RCW-3067	SI470	D6-471	TM5T5	GP2K-471	5GA-T47	FM RF Amp. Screen
C4	82	500	UCG-1026						Fixed Trimmer
C5	1.5		RCN-048	SII. 5NP0	TCZ-1.5		NP0K-1R5		AM RF Coupling
C6	10	500	UCG-004	1468-00001	D6-100	5W5Q1	GP1K-100	MS-41	FM RF Coupling
C7	1		RCN-001		TCZ-1		NP0K-010		FM Osc. Coupling
C8	18		RCW-2031		TCN-18		N750K-180		FM Osc. Grid Cap.
C9	22		RCW-3065		TCN-22		N750K-220	5TCU-Q22	FM Osc. Feedback
C10	18	500	RCN-046	SI18	D6-180	5R5Q2	GP1K-180	MS-42	Osc. Cathode
C11	22	500	UCG-1012	1469-000025		5R5Q25		MS-425	AM Osc. Grid Cap..
C12	1500		RCW-026	SII500	D6-152	TM5D15		5HK-D15	FM Mixer Cathode
C13	800		RCW-3037	BPD-0008	DD-801	TM5T8	801-001	5HK-D1	FM Conv. Fil.
C14	5000		RCW-3014	BPD-005	DD-502	TM5D5	811-005	5HK-D5	Decoupling
C15	.05	200	UCC-011	P288-05	DF-503	PJ2S5		2TM-S5	AVC Filter
C16	.05	200	UCC-011	P288-05	DF-503	PJ2S5		2TM-S5	AVC Filter
C17	5000		RCW-3014	BPD-005	DD-502	TM5D5	811-005	5HK-D5	1st. IF Amp. Dec.
C18	5000		RCW-3014	BPD-005	DD-502	TM5D5	811-005	5HK-D5	1st. IF Amp. Cathode
C19	.01	400	UCC-040	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	AM Conv. Cathode
C20	.05	200	UCC-011	P288-05	DF-503	PJ2S5		2TM-S5	Phono Audio Coupling
C21	5000		RCW-3014	BPD-005	DD-502	TM5D5	811-005	5HK-D5	2nd. IF Amp. Screen
C22	5000		RCW-3014	BPD-005	DD-502	TM5D5	811-005	5HK-D5	2nd. IF Amp. Cathode
C23	5000		RCW-3014	BPD-005	DD-502	TM5D5	811-005	5HK-D5	2nd. IF Amp. Fil.
C24	.1	600	UCC-048	P688-1	DF-104	PTE6P1		6TM-P1	RF Bypass
C25	.1	600	UCC-048	P688-1	DF-104	PTE6P1		6TM-P1	RF Bypass
C26	33	500	UCG-016						FM IF Coupling
C27	.02	600	UCC-041	P688-02	DF-203	PTE6S2		6TM-S2	Phono Audio Coupling
C28	5000		RCW-3014	BPD-005	DD-502	TM5D5	811-005	5HK-D5	3rd. FM IF Amp. Dec.
C29	470	500	UCU-044	1468-0005	D6-471	TM5T5	GP2K-471	1FM-471	RF Bypass
C30	220	500	UCU-536	1468-00025	D6-221	5W5T25	GP2K-221	1FM-325	De-Emphasis
C31	.001	600		P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	AM Audio Coupling
C32	.002	400	UCC-036	P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	Phono Tone Comp.
C33	.002	400	UCC-036	P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	Tone Comp.
C34	.005	400	UCC-022	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Tone Comp.
C35	.005	400	UCC-022	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Audio Coupling
C36	47	500	UCG-020	1468-00005	D6-470	5W5Q5	GP1K-470	1FM-45	AF Amp. Plate Bypass
C37	.02	600	UCC-041	P688-02	DF-203	PTE6S2		6TM-S2	Audio Coupling
C38	.005	1000	UCC-059	P1088-005		PTE16D5		MB-D5	Audio Output Plate
C39	5000		RCW-3014	BPD-005	DD-502	TM5D5	811-005	5HK-D5	Line Filter
C40	470		RCW-3067	SI470	D6-471		GP2K-471	5GA-T47	RF Amp. Cathode Bypass

CHASSIS—TOP VIEW



PROPERTY OF
BELL TELEPHONE
BELL PLACE ST.
DENVER, COLORADO

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	General Electric PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	4Meg	½	RRC-179		AG-85-S	AN-86	Tone Control
B	Shaft		Not Req.		KSS-3	AK-4	Attach to R1A per instructions
C	Switch		Not Req.		SWB	K-155	Attach to R1A per instructions
R2A	2Meg	½	RRC-180	Q18-139X	AT-116	AN-78	Volume Control - Tapped ⓐ 1 Meg
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Attach to R2A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	General Electric PART No.	IRC PART No.	
R3	100Ω	½	URD-025	BTS-100	RF Amp. Cathode
R4	4700Ω	½	URD-065	BTS-4700	RF Amp. Screen
R5	1500Ω	½	URD-053	BTS-1500	FM Mixer Cathode
R6	22KΩ	½	URD-081		FM AM Osc. Grid
R7	470Ω	½	URD-041	BTS-470	FM Mixer Plate Decoupling
R8	100Ω	½	URD-025		Parasitic Suppressor
R9	100Ω	½	URD-025	BTS-100	1st. IF Amp. Cathode
R10	680Ω	½	URD-045	BTS-680	AM Converter Cathode
R11	470Ω	½	URD-041	BTS-470	Decoupling
R12	18KΩ	½	URD-079	BTS-18K	Phono Input Shunt
R13	6.8Meg	½	URD-141	BTS-6.8Meg	Phono Pre Amp. Grid
R14	150Ω	½	URD-029	BTS-150	2nd. IF Amp. Cathode
R15	3300Ω	½	URD-061	BTS-3300	2nd. IF Amp. Screen
R16	2.7Meg	½	URD-131		Phono Pre Amp. Screen
R17	270KΩ	½			Phono Pre Amp. Decoupling-See Note 1
R18	1Meg	½	URD-121		Phono Pre Amp. Plate
R19	1000Ω	½	URD-049	BTS-1000	2nd. IF Amp. Plate Decoupling
R20	220KΩ	½	URD-105	BTS-220K	Diode Load
R21	2.2Meg	½	URD-129	BTS-2.2Meg	AVC Network
R22	1Meg	½	URD-121	BTS-1Meg	AVC Network
R23	47KΩ	½	URD-089	BTS-47K	Diode Filter
R24	220KΩ	½	URD-105	BTS-220K	Tone Compensation
R25	100KΩ	½	URD-097	BTS-100K	Tone Compensation
R26	150KΩ	½	URD-101	BTS-150K	Tone Compensation
R27	470KΩ	½	URD-113	BTS-470K	Series Test Point
R28	100KΩ	½	URD-097	BTS-100K	Limiter Grid
R29	180Ω	½	URD-031	BTS-180	Limiter Cathode
R30	22KΩ	½	URD-081	BTS-22K	Limiter Decoupling
R31	100KΩ	½	URD-097	BTS-100K	Tone Compensation
R32	47Ω	½	URD-019		Feedback Network
R33	6000Ω	5	RRW-086	1 3/4A-6000	Bleeder-Wire Wound
R34	120KΩ	½	URD-099	BTS-120K	Diode Load
R35	120KΩ	½	URD-099	BTS-120K	Diode Load
R36	100KΩ	½	URD-097	BTS-100K	De-Emphasis
R37	7.5Meg	½			AF Amp. Grid - See Note 2
R38	220KΩ	½	URD-105	BTS-220K	AF Amp. Plate
R39	1000Ω	½	URD-049		Parasitic Suppressor
R40	470KΩ	½	URD-113	BTS-470K	Output Grid
R41	330Ω	1	URE-037	BTA-330	Output Cathode
R42	6.2Meg	½			Feedback Network-See Note 3
R43	470Ω	½	URD-041	BTS-470	Speaker Isolation
R44A	1800Ω	5	RRW-087		Filter-Wire Wound
B	650Ω	5			Filter-Wire Wound

Note 1. Some models use a 150KΩ resistor in this application
Note 2. Some models use a 6.8Meg resistor in this application
Note 3. Some models use a 5.6Meg resistor in this application

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	General Electric PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC ⓐ .6A	520VCT .093ADC	5VAC ⓐ 2.0A	6.3VAC ⓐ 2.5A	PTP-311	PM8404	P-3052	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		General Electric PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	5.8KΩ	3.8Ω	540Ω	.5Ω	RTO-113	A-3877	A-2930	RO-302	

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	General Electric PART No.	VIKING PART No.	QUAM PART No.	
SP1A	P.M.	3.8Ω	S1212DZ S1212D7 ①	12J12	12A4A	① Alternate Speaker
	CONE DIA.	V. C. DIA.				
SP1B	12"	1"				

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	General Electric PART No.	MERIT PART No.	IRC PART No.	
L1	FM Ant. Coil	0Ω		RLI-164			
L2	Plate Choke	0Ω		RLI-124			
L3	RF Choke	1.8Ω		RLI-122		CLA	2.2 Microhenries
L4	FM RF Coil	0Ω		RLB-031			
L5	Fil. Choke	.8Ω		RLI-102		CLA	1 Microhenries
L6	Fil. Choke	.8Ω		RLI-102		CLA	1 Microhenries
L7	Fil. Choke	0Ω		RLI-124			
L8	RF Choke	1.8Ω		RLI-122		CLA	2.2 Microhenries
L9	Cath. Coke	.8Ω		RLI-102		CLA	1 Microhenries
L10	FM Osc. Coil	0Ω		RLC-114			
L11	AM Loop Ant.	.4Ω		RLL-048			
L12	AM Ant. Coil	29Ω	3Ω	RLA-038			
L13	AM RF Coil	29Ω	10Ω	RLB-033			Tap at 6Ω
L14	AM Osc. Coil	.4Ω	8.5Ω	RLC-116			Tap at 1.5Ω
L15	1st. FM IF	.5Ω	.5Ω	RTL-112			
L16	2nd. FM IF	.7Ω	.7Ω	RTL-113			
L17	1st. AM IF	9Ω	9.4Ω	RTL-131			
L18	2nd. AM IF	15Ω	15Ω	RTL-134			
L19	3rd. FM IF	1.8Ω		RTL-132			
L20	Discr. Trans.	1.2Ω	.8Ω	RTD-010			Tap ⓐ .4Ω

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA								REMARKS
	General Electric PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.			
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE		
M1	RPX-050								

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	General Electric PART No.	WALCO PART No.	JENSEN PART No.	
M2	RPJ-010	W-66TPS	GE-11	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					General Electric PART No.		
M3	Bayonet	6-8	.15	Brown			Type #47
M4	Bayonet	6-8	.15	Brown			Type #47

MISCELLANEOUS

ITEM No.	PART NAME	General Electric PART No.	NOTES
M5	Switch	RSW-091	Function Selector
M6	Tuning Cap. (AM)	RCT-057	(36-432MMF, 13-222MMF, 14-132MMF)
M7	Tuning Cap. (FM)	RCT-055	
	Cabinet	RAV-180	Model 754
	Cabinet	RAV-181	Model 756
	Knob	RDK-268	Tuning, Volume
	Knob	RDK-269	Tone, Selector
	Dial Scale	RDS-112	
	Pointer	RDP-066	

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Set the pointer opposite the last mark on the **F. M.** scale with the tuning gang fully open.

AM ALIGNMENT

Connect an 18 microhenry choke across the loop terminals.
The signal generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
IRE Dummy antenna consists of a 20 microhenry choke, 200MMF condenser and 25 microhenry resistor, all in series.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.02MFD	High side to pin 1 (grid) of 6AU6 (V4) Low side to chassis	455KC (400~ Mod.)	A. M. (CCW)	Tuning gang fully closed	Across voice coil	A1, A2	Adjust for maximum output
2.	"	High side to pin 1 (grid) of 6BAG (V3) Low side to chassis	"	"	"	"	A3, A4	Adjust for maximum output. Readjust A1 and A2.
3.	"	High side to pin 1 (grid) 6BJ6 (V1) Low side to chassis	1620KC	"	Tuning gang fully open	"	A5	Adjust for maximum output
4.	"	"	1500KC	"	Tune for maximum output	"	A6	Rock tuning gang while adjusting A6 for maximum output.
5.	IRE Dummy	High Side through dummy to "AM" ant. terminal (disconnect link). Low side to chassis.	580KC	"	"	"	A7	Adjust for maximum output.
6.	"	"	1500KC	"	"	"	A8	Adjust for maximum output

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	100MMF	High side to pin 1 (grid) of 6BA6 (V3) Low side to chassis	10.7MC (Microhenry Mod.)	F.M. (Center)	Tuning gang fully closed	D.C. probe to point A. Common to chassis.	A9, A10 A11	Adjust for maximum deflection
8.	"	High side to stator of front section of F.M. tuning gang. (Available through hole in bottom of tuner cover) Low side to chassis.	"	"	"	"	A12, A13	"
9.	"	"	"	"	"	D.C. probe to point (B) Common to chassis	A14	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
10.	"	"	"	"	"	"	A15	Detune signal generator for maximum reading, then adjust A15 for maximum deflection

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
7.	100MMF	High side to pin 1 (grid) of 6BA6 (V3) Low side to chassis	10.7MC (300KC sweep)	F.M. (center)	Point of non-interference	Vertical Amp. to point (A). Low side to chassis	A9, A10 A11	Adjust for maximum amplitude and symmetry as per Fig. 1
8.	"	High side to stator of front section of F.M. tuning gang (available through hole in bottom of tuner cover) Low side to chassis	"	"	"	"	A12, A13	"
9.	"	"	"	"	"	Vertical amp. to point (B). Low side to chassis.	A14, A15	Adjust A14 so 10.7MC occurs in center of "S" curve as per Fig.2 Adjust A15 for maximum amplitude of response curve with symmetrical peaks Continue with Step 11

FM RF ALIGNMENT

The cover of F.M. R.F. tuner should be in place during alignment.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
11.	270Ω carbon resistor	High side through 270Ω resistor to ungrounded F.M. ant. terminal. Low side to chassis.	108.5MC	F.M. (Center)	Tuning gang fully open	DC probe to point (A). Common to chassis	A16	Adjust for maximum deflection.
12.	"	"	108MC	"	Tune gang for maximum deflection	"	A17	Adjust for maximum deflection while rocking signal generator Repeat Step 11

FIG. 1

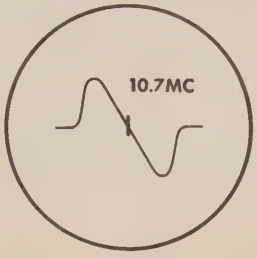
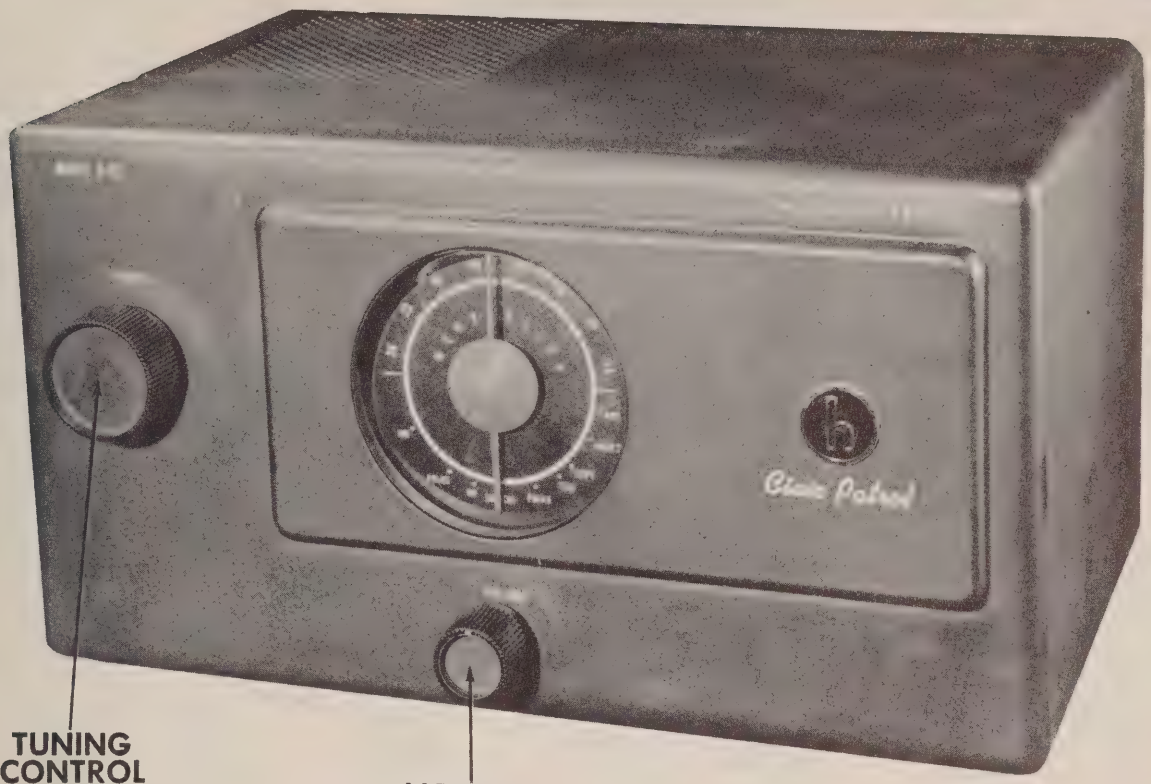


FIG. 2

HALLICRAFTERS
MODEL S-82



HALLICRAFTERS
MODEL S-82

TRADE NAME	Hallicrafters Model S-82
MANUFACTURER	Hallicrafters Co., 4401 W. 5th Ave., Chicago 24, Ill.
TYPE SET	AC/DC Operated FM Superheterodyne Receiver
TUBES (SIX)	Types 12AT7 Conv., 12BA6 1st. IF Amp., 12BA6 2nd. IF Amp., 12AL5 Ratio Det., 12SQ7 AF Amp., 50L6GT Audio Output.
POWER SUPPLY	110-120 Volts AC/DC RATING .3 Amp. @ 117 Volts AC
TUNING RANGE	FREQ. MOD. 30-50MC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		Hallicrafters PART No.	STANDARD REPLACEMENT		
V1	Converter	90X12AT7	12AT7	9A	
V2	1st IF Amplifier	90X12BA6	12BA6	7BK	
V3	2nd IF Amplifier	90X12BA6	12BA6	7BK	
V4	Ratio Detector	90X12AL5	12AL5	6BT	
V5	AF Amplifier	90X12SQ7	12SQ7	8Q	
V6	Audio Output	90X50L6GT	50L6GT	7AC	

CAPACITORS

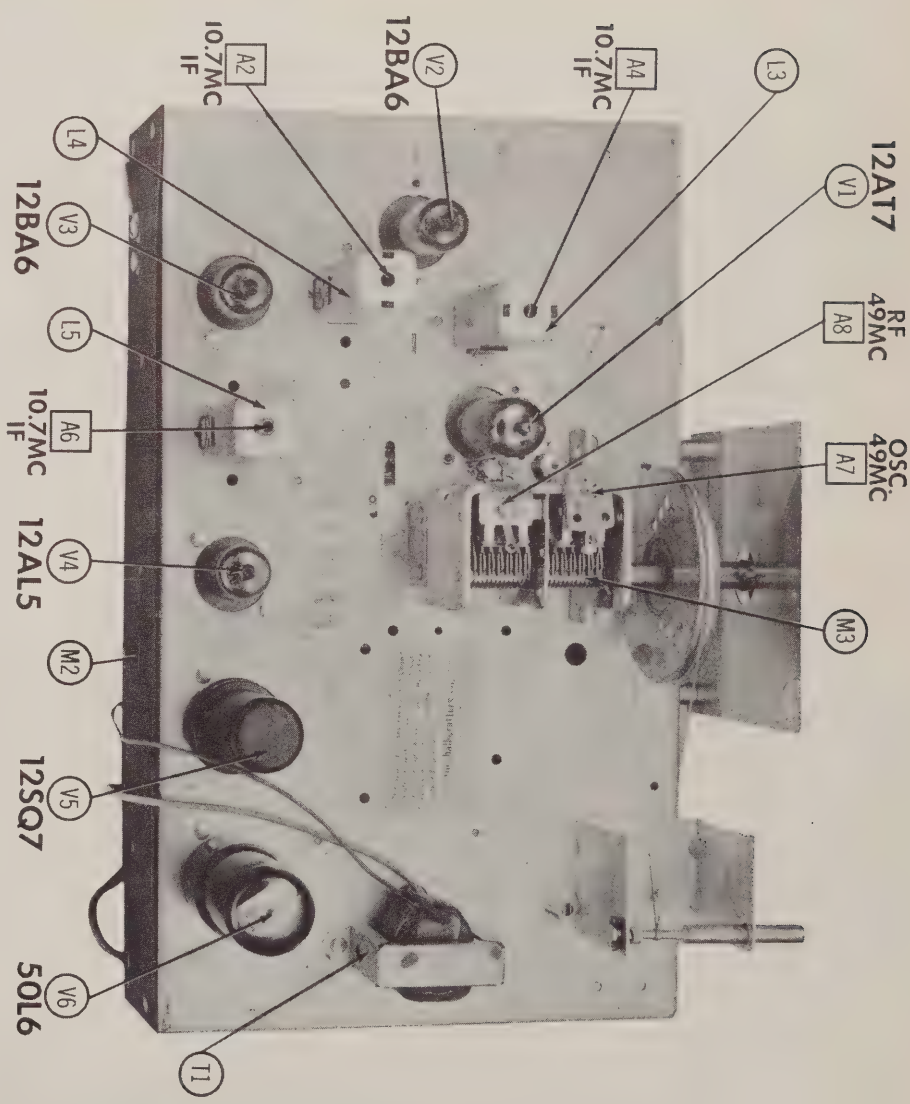
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	Hallicrafters PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	60	150	45B091	PRS150/40-40-40		EZ55515C		TVA-3451	Filter (Red)
B	40	150		PRS25/25				TVA-1205	Filter (Yellow)
C	40	150							Decoupling (Yellow)
D	20	25							Output Cathode (Blue)
C2	2	50	45B192	PRS150/4		BBR-2-50		TVA-1301	Stabilizing Cap.
C3	330		47B20331K5	SI330	D6-331		GP2K-331	5GA-T33	RF Coupling
C4	330		47B20331K5	SI330	D6-331		GP2K-331	5GA-T33	RF Coupling
C5	5		47A160-6	SI5NP0	TCZ-4.7		NP0K-050		Osc. Coupling
C6	100		47X25UK101K	SI100N750	TCN-100				Osc. Grid Cap.
C7	5000		47A168	BPD-005	DD-502	TM5D5	811-005	5HK-D5	Osc. Plate Bypass
C8	33		47X25C330J		TCZ-33		NP0K-330		Conv. Plate Dec.
C9	10000		47A224	BPD-01	DD-103	TM5S1	821-01	5HK-S1	Mixer Cathode Bypass
C10	5000		47A168	BPD-005	DD-502	TM5D5	811-005	5HK-D5	Conv. Fil. Bypass
C11	5000		47A168	BPD-005	DD-502	TM5D5	811-005	5HK-D5	RF Bypass
C12	5000		47A168	BPD-005	DD-502	TM5D5	811-005	5HK-D5	1st. IF Amp. Dec.
C13	5000		47A168	BPD-005	DD-502	TM5D5	811-005	5HK-D5	1st.IF Amp. Cathode
C14	5000		47A168	BPD-005	DD-502	TM5D5	811-005	5HK-D5	2nd.IF Amp. Dec.
C15	5000		47A168	BPD-005	DD-502	TM5D5	811-005	5HK-D5	2nd.IF Amp. Cathode
C16	5000		47A168	BPD-005	DD-502	TM5D5	811-005	5HK-D5	2nd.IF Amp. Fil.
C17	5000		47A168	BPD-005	DD-502	TM5D5	811-005	5HK-D5	Ratio Det. Fil.
C18	100		47X25UK101K	SI100N750	TCN-100				Diode Load Cap.
C19	100		47X25UK101K	SI100N750	TCN-100				Diode Load Cap.
C20	1000		47B20102M5	SI1000	D6-102	TM5D1	GP2L-102	5HK-D1	De-emphasis
C21	.01	600	46AY103J	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Audio Coupling
C22	.01	600	46AY103J	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Audio Coupling
C23	.005	600	46AY502J	B688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Audio Output Plate
C24	5000		47A168	BPD-005	DD-502	TM5D5	811-005	5HK-D5	Fil. Bypass
C25	.05	600	46AY503J	P688-05		PTE6S5		6TM-S5	Line Isolation

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	Hallicrafters PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	2Meg	½	25B896	Q13-139	AG-66-Z	B-76-S	Volume Control
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Attach to R1A per instructions
C	Switch		Not Req.	76-1	SWB	Not Req.	Attach to R1A per instructions

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	Hallicrafters PART No.	IRC PART No.	
R2	1000Ω	1/2	23X20X102K	BTS-1000	Mixer Cathode
R3	1000Ω	1/2	23X20X102K	BTS-1000	Mixer Plate Decoupling
R4	1000Ω	1/2	23X20X102K	BTS-1000	Osc. Plate
R5	10KΩ	1/2	23X20X103K		Osc. Grid
R6	100Ω	1/2	23X20X101K	BTS-100	1st. IF Amp. Cathode
R7	1000Ω	1/2	23X20X102K	BTS-1000	1st. IF Amp. Decoupling
R8	100Ω	1/2	23X20X101K	BTS-100	2nd. IF Amp. Cathode
R9	1000Ω	1/2	23X20X102K	BTS-1000	2nd. IF Amp. Decoupling
R10	47KΩ	1/2	23X20X473K	BTS-47K	Diode Filter
R11	47KΩ	1/2	23X20X473K	BTS-47K	Ratio Det. Diode Load
R12	2.2Meg	1/2	23X20X225K	BTS-2.2Meg	AF Amp. Grid
R13	270KΩ	1/2	23X20X274K	BTS-270K	AF Amp. Plate
R14	470KΩ	1/2	23X20X474K	BTS-470K	Output Grid
R15	150Ω	1/2	23X20X151K	BTS-150	Output Cathode
R16	100Ω	1/2	23X20X101K	BTS-100	Impedance Matching
R17	22Ω	1			Surge Limiter
R18	220Ω	1	23X30X221K	BTA-220	Filter
R19	47 Ω	1	23X30X471K	BTA-470	Filter
R20	100Ω	1		BTA-100	Filament Dropping - See Note 1
R21	100Ω	1		BTA-100	Filament Dropping - See Note 2
R22	270Ω	1	24BW271E	BTA-270	Filament Dropping

Note 1. Some Models use a 47Ω Resistor in this application
Note 2. Not used in all Models

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		Hallicrafters PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	2KΩ	3.0Ω	160Ω	1Ω	55A127	A-3876	A-2928	RO-2	

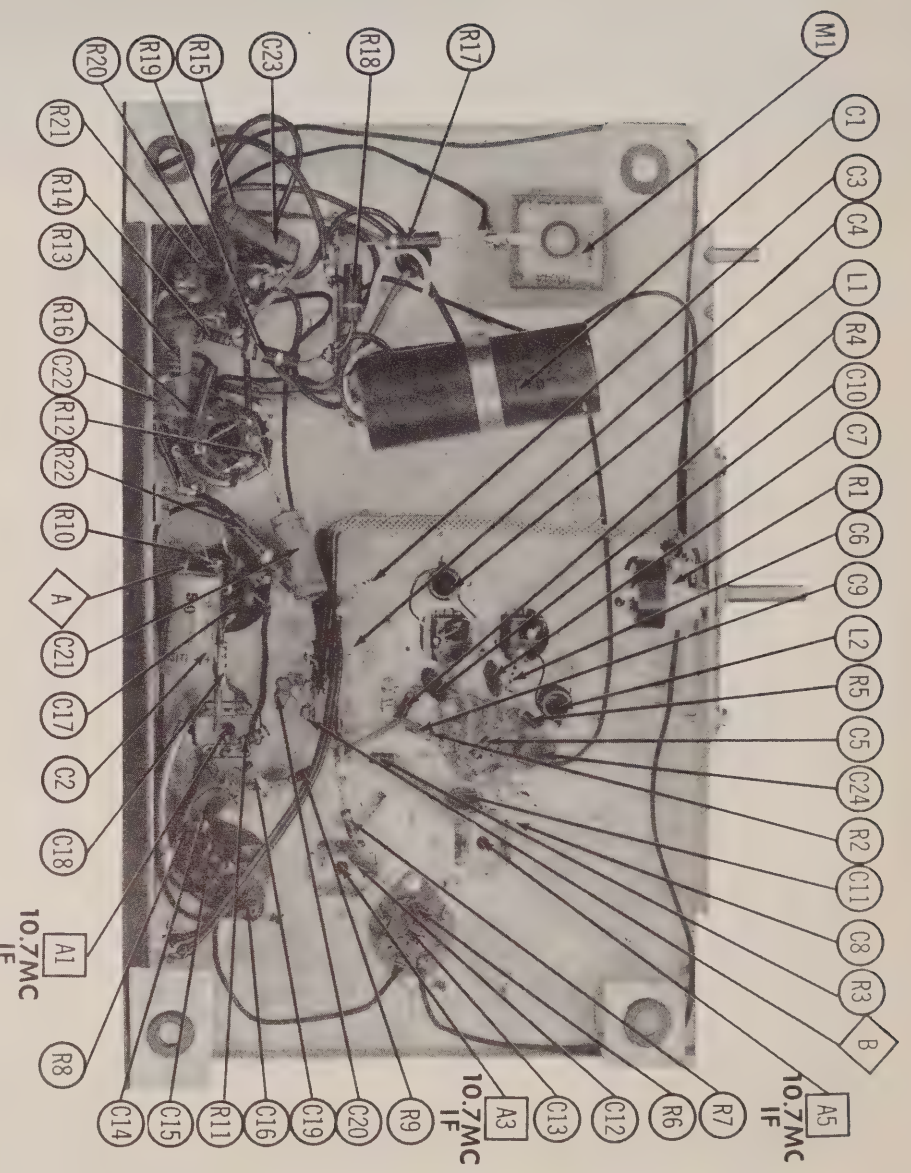
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	Hallicrafters PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	P.M.	3.0Ω	85C120	ST-105 Mod. P5-X	5A1	
	CONE DIA.	V. C. DIA.				
SP1B	5"	9/16"				

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	Hallicrafters PART No.	MERIT PART No.	
L1	Ant. Coil	0Ω		51B1475		
L2	Osc. Coil	0Ω		51B1474		
L3	Input IF	.8Ω	.8Ω	50C519		
L4	Output IF	.8Ω	.8Ω	50C517		
L5	Ratio Det.	3.8Ω	.2Ω	50C518		Tap @ .8Ω

CHASSIS—BOTTOM VIEW



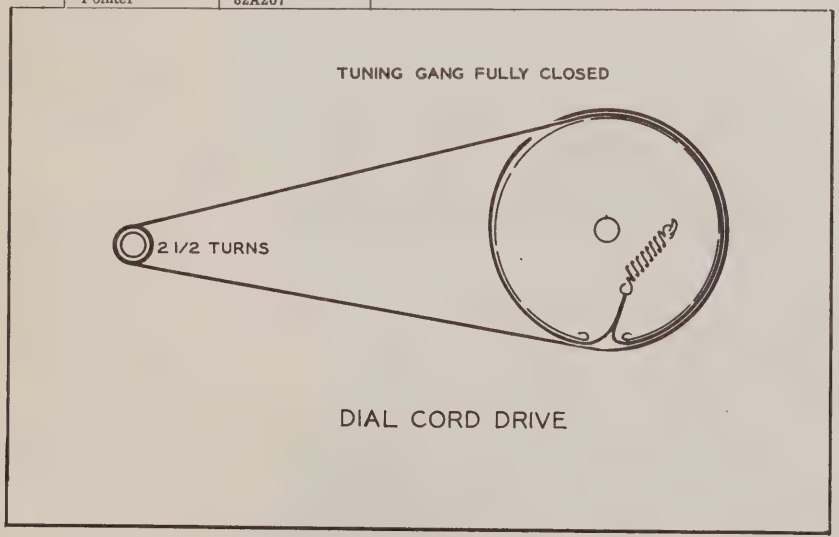
PARTS LIST AND DESCRIPTIONS (Continued)

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT	Hallicrafters PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	
M1	.075A.DC	27A161	NC-5	5M1	1004A	

MISCELLANEOUS

ITEM No.	PART NAME	Hallicrafters PART No.	NOTES
M2	Switch	60A243	Speaker - Phones
M3	Tuning Gang	48C279	
A7	Trimmer	44A115	Osc. Adj. (4-20MMF)
	Cabinet	66B764	
	Dial Scale	83C405	
	Pointer	82A207	



ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer parallel with base of dial.
Use an isolation transformer to protect the test equipment.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (±1%) resistors in series from Point Ⓐ to chassis. The junction of these two resistors is alignment Point Ⓒ as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01MFD	High side to Pin 1, (grid) of 12BA6, (V2). Low side to B- .	10.7MC (unmod.)	Tuning gang fully closed	DC probe to Point Ⓐ. Common to B- .	A1, A2 A3	Adjust for maximum deflection
2.	"	High side to Pin 7, (Grid), of 12AT7, (V1). Low side to B- .	"	"	"	A4, A5	"
3.	"	"	"	"	DC probe to Point Ⓑ. Common to Point Ⓒ.	A6	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

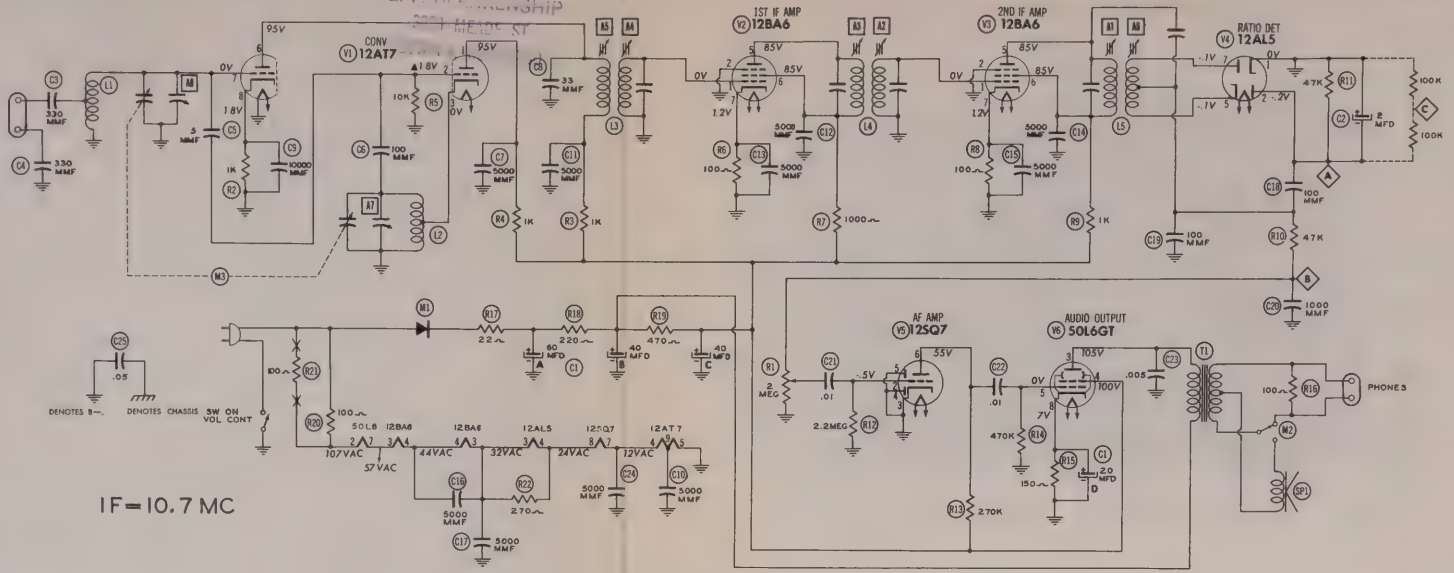
Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
1.	.01MFD	High side to Pin 1, (grid) of 12BA6, (V2). Low side to B- .	10.7MC (450KC swp)	Point of non-interference	Vert. amp. to Point Ⓐ. Low side to B- .	A1, A2 A3	Disconnect stabilizor capacitor C2. Adjust for maximum amplitude and symmetry as per Fig. 1.
2.	"	High side to Pin 7, (grid) of 12AT7 (V1) Low side to B- .	"	"	"	A4, A5	"
3.	"	"	"	"	Vert. amp. to Point Ⓑ. Low side to chassis.	A6	Reconnect capacitor C2. Adjust A6 until 10.7MC occurs at center of crossover lines as per Fig. 2. SLIGHTLY retouch A1 for max. amplitude and straightness of cross-over lines

RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	68Ω carbon resistor	High side thru 68Ω to antenna terminal "A". Low side "G".	49MC (unmod.)	49MC	DC probe to Point Ⓐ. Common to B - .	A7, A8	Adjust for max. deflection. Rock tuning gang while adjusting A8.

Check the calibration at 33MC. If necessary change the length of the ground lead on L2 for maximum deflection. If L2 is changed repeat Step 4.



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	12AT7	†1.7KΩ	10KΩ	0Ω	12Ω	0Ω	†1.7KΩ	.1Ω	1KΩ	6Ω
V 2	12BA6	.8Ω	0Ω	60Ω	48Ω	†1.7KΩ	†1.7KΩ	100Ω		
V 3	12BA6	.8Ω	0Ω	36Ω	48Ω	†1.7KΩ	†1.7KΩ	100Ω		
V 4	12AL5	0Ω	47KΩ	36Ω	24Ω	2Meg	0Ω	2Meg		
V 5	12SQ7	0Ω	2.2Meg	0Ω	0Ω	0Ω	†270KΩ	12Ω	24Ω	
V 6	50L6GT	INF	110Ω	†402Ω	†710Ω	470KΩ	160Ω	60Ω	150Ω	

▲ TAKEN WITH VACUUM TUBE VOLTMETER
† MEASURED FROM OUTPUT OF M1

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1952

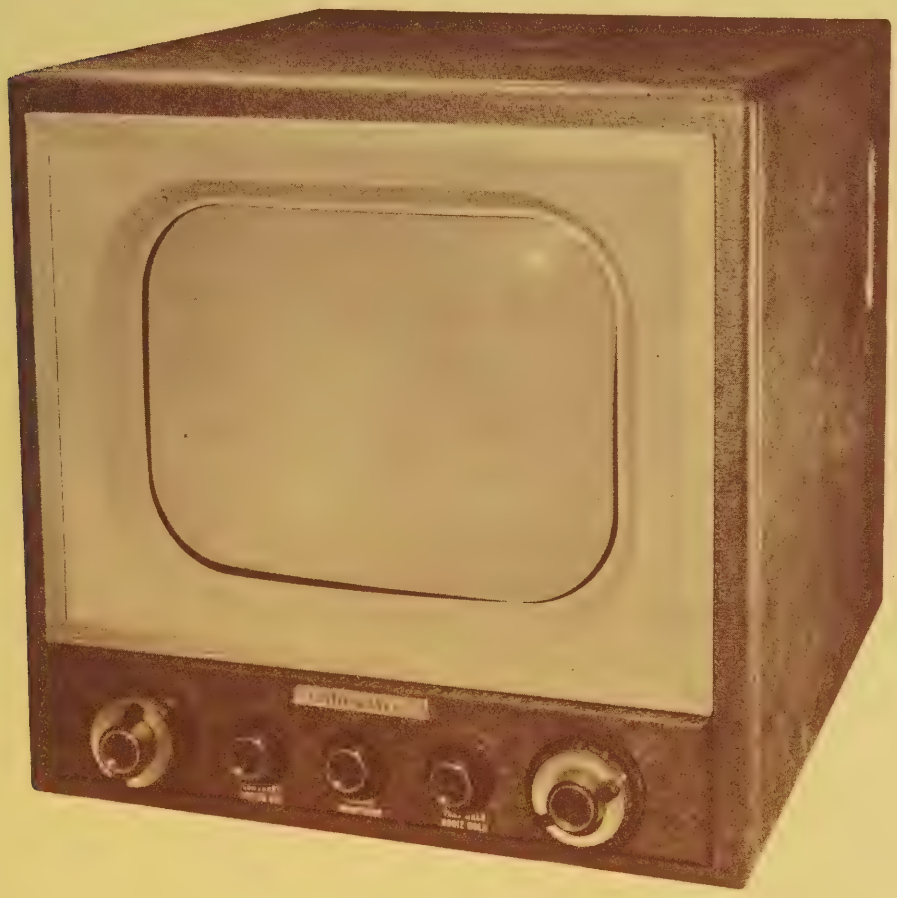
PHOTOFACT* Folder

HALLICRAFTERS
MODELS 14808, 20823, 20823B

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



MODEL 14808

HALLICRAFTERS
MODELS 14808, 20823, 20823B

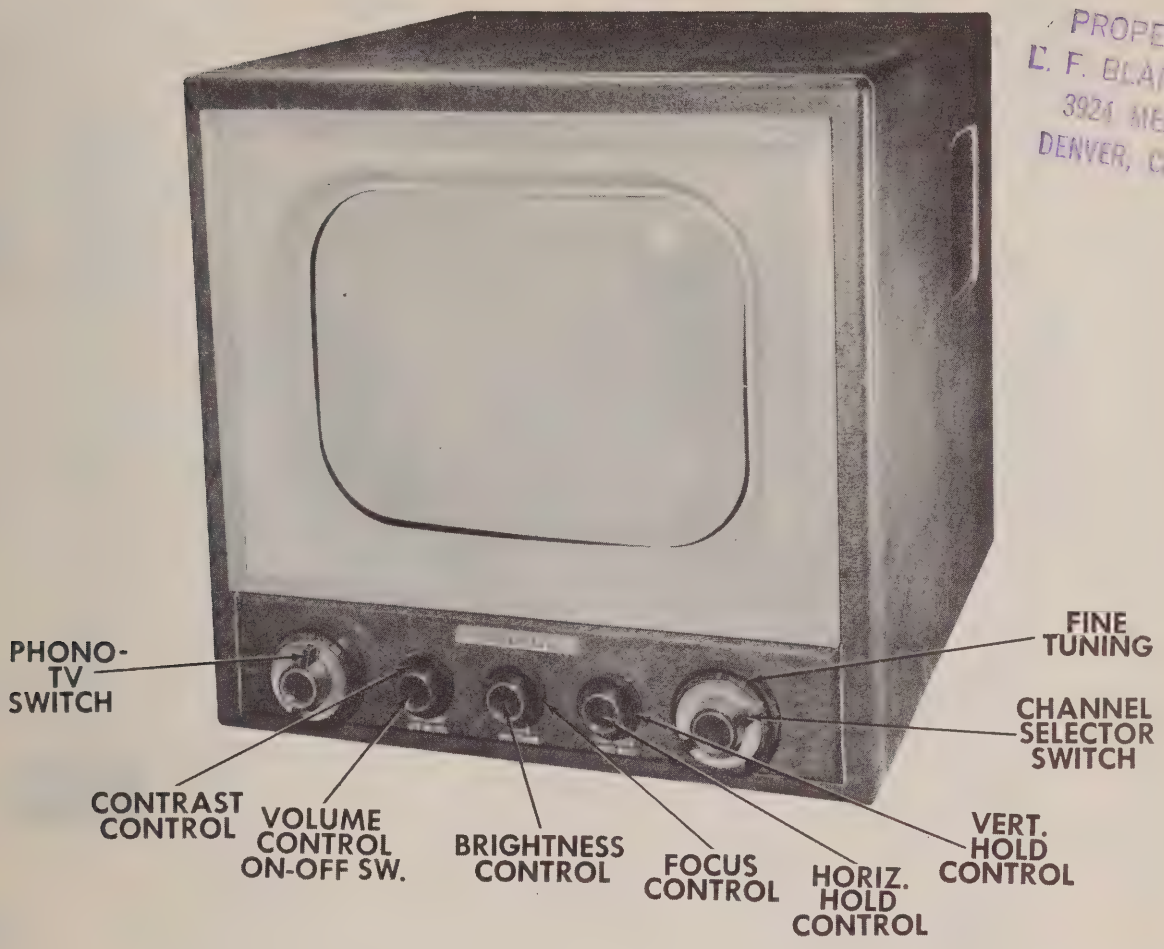
HOWARD W. SAMS & CO., INC. • Indianapolis, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 5-52 SET 167 FOLDER 10

HALLICRAFTERS
MODELS 14808, 20823, 20823B

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE
DENVER, COLORADO



HALLICRAFTERS
MODELS 14808, 20823, 20823B

Hallicrafters Model 14808

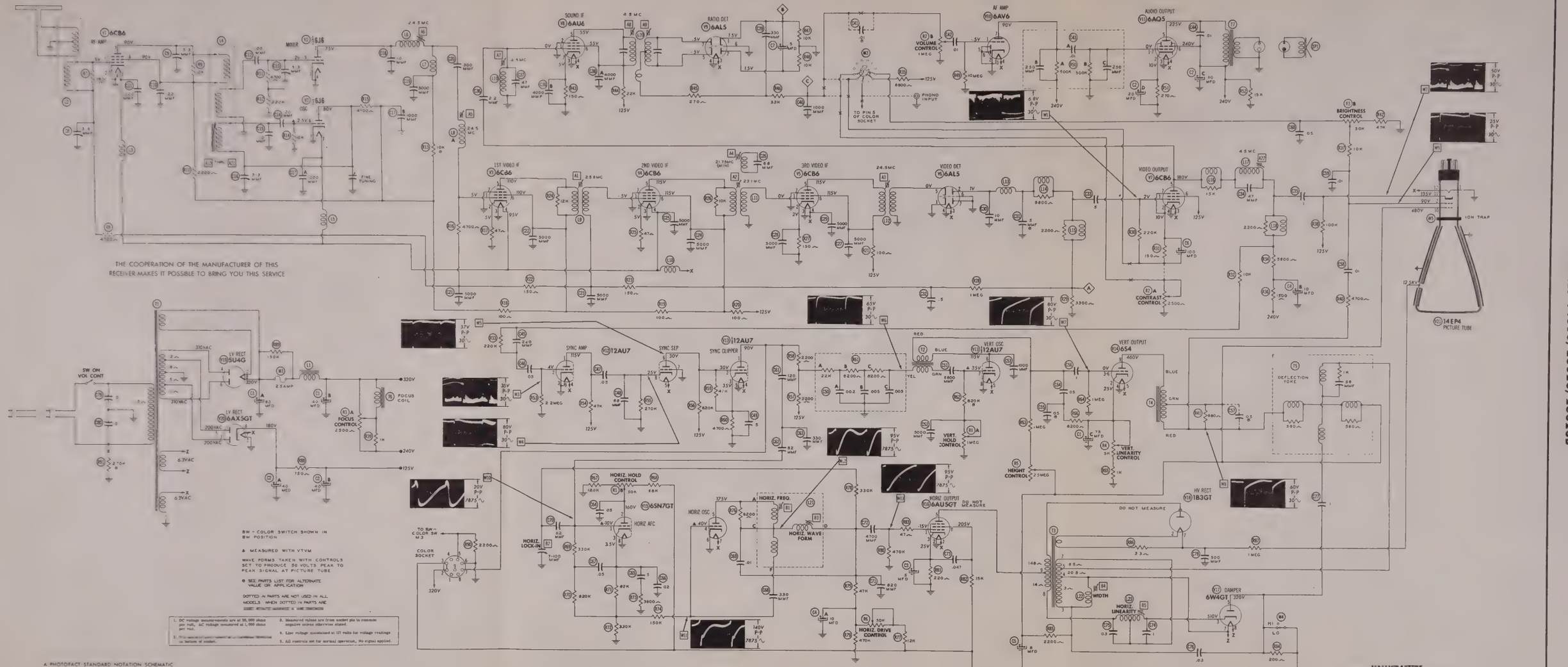
TRADE NAME	Hallicrafters Models 14808 (Ch. R900D), 20833 (Ch. M900D), 20823B (Ch. L900D)
MANUFACTURER	Hallicrafters Co., 4401 W. 5th. Ave., Chicago 24, Ill.
TYPE SET	Television Receiver
TUBES	Twenty-one
POWER SUPPLY	110-120 Volts AC•60 cycles
RATING	1.75 Amp @ 117 Volts AC
TUNING RANGE	Channel 2 thru 13

INDEX

Alignment Instructions 6, 7
Disassembly Instructions 11
Horizontal Sweep Circuit Adjustments 11
Parts List and Descriptions 12, 13, 14
Photographs
Cabinet - Rear View 11
Capacitor & Alignment Identification 4, 9
Chassis - Top View 3
Photos (Cont.)
RF Tuner 10
Resistor & Inductor Identification 15, 16
Resistance Measurements 7
Schematic (Alternate Tuner) 8
Schematic (TV) 2
Tube Placement Charts 5

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

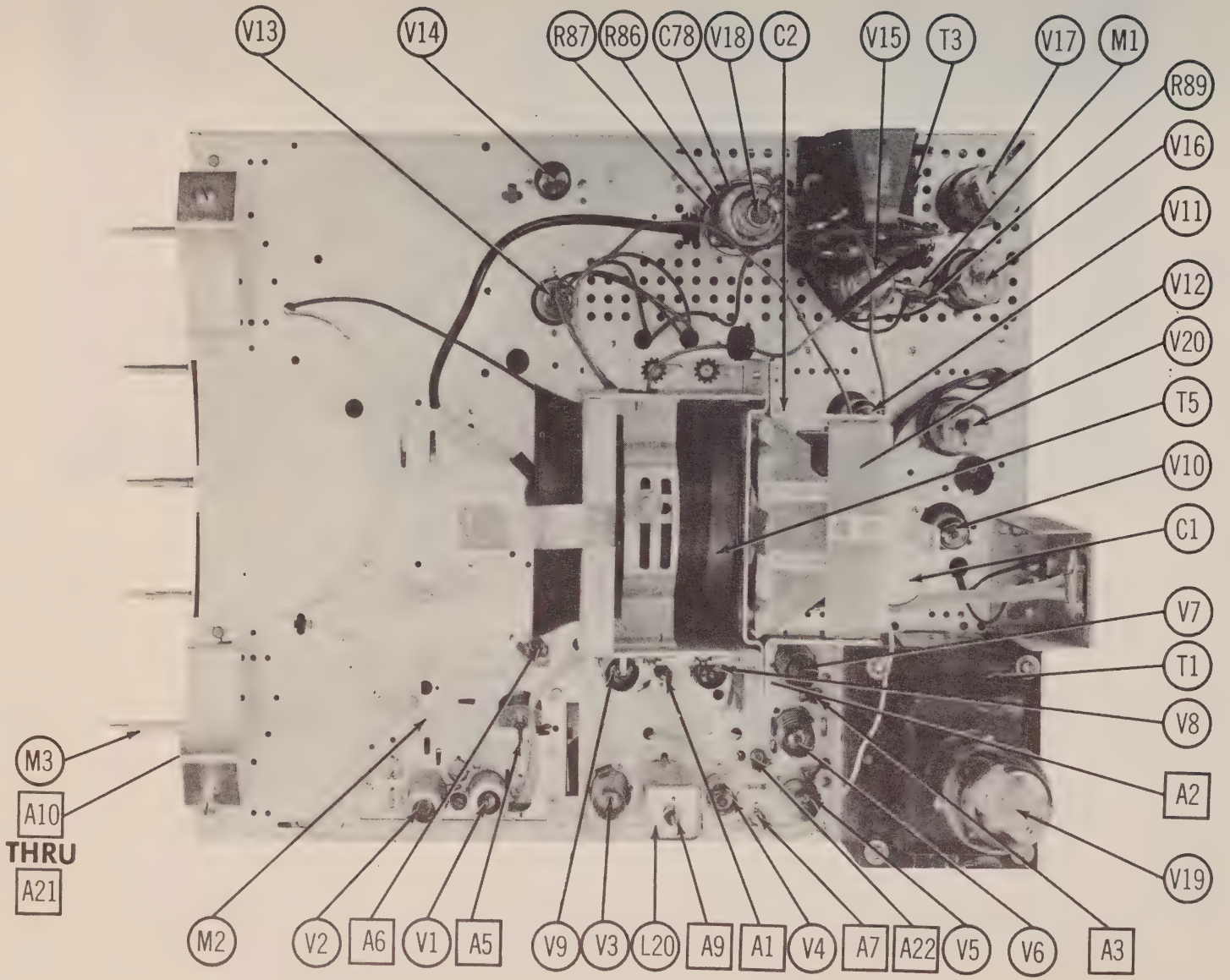


A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1952

HALLICRAFTERS
MODELS 14808, 20823, 20823B

HALLICRAFTERS
MODELS 14808, 20823, 20823B

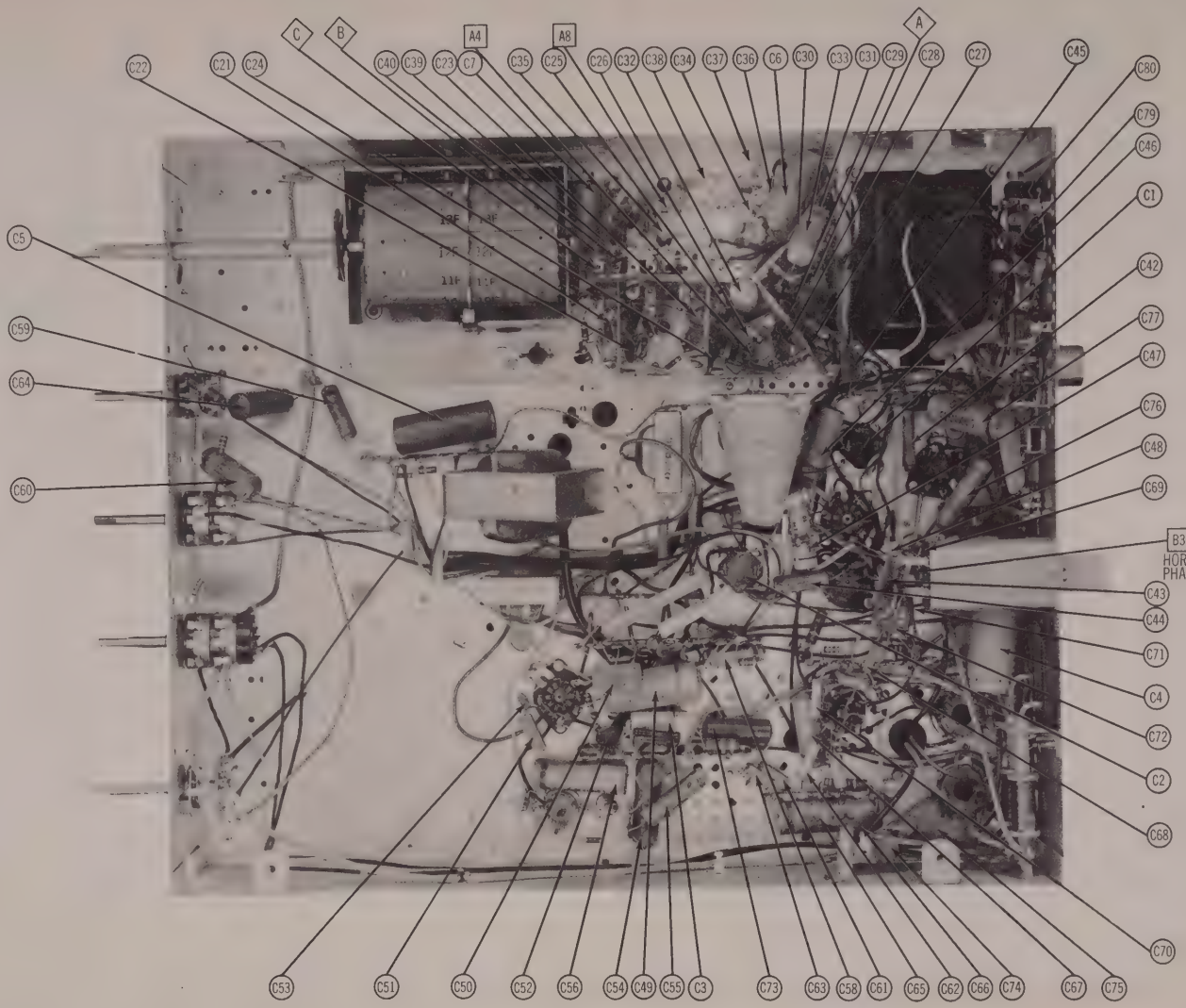


CHASSIS TOP VIEW

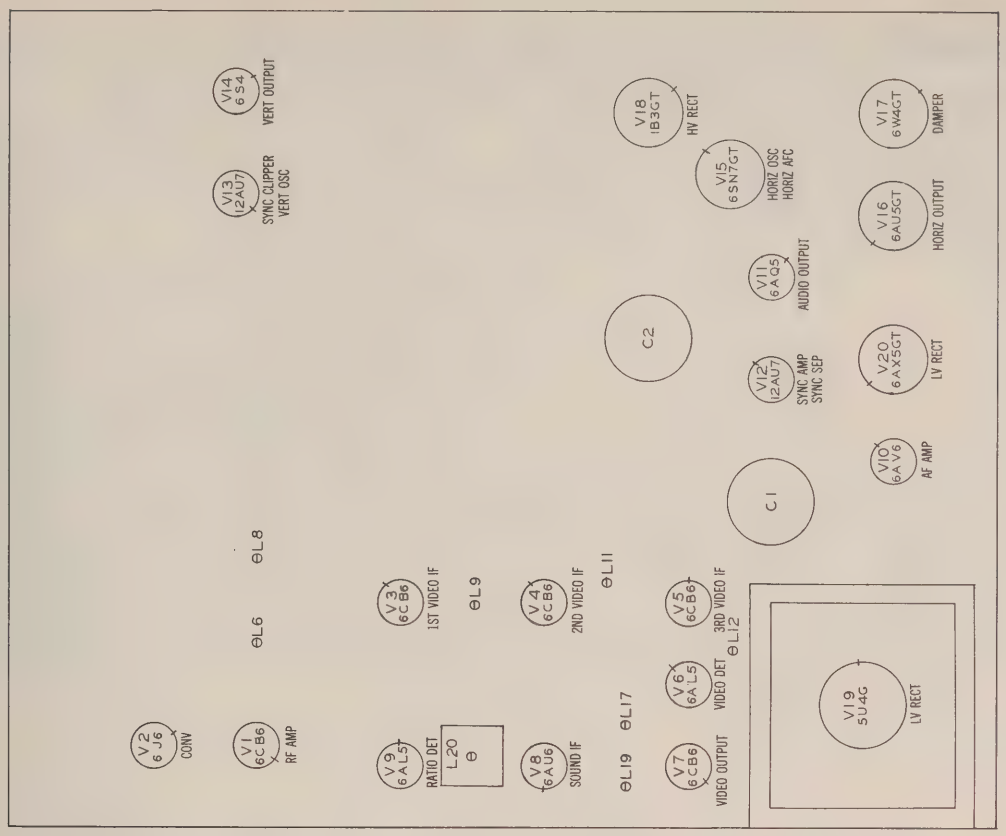
MODELS 14808, 20823, 20823B

HALLICRAFTERS

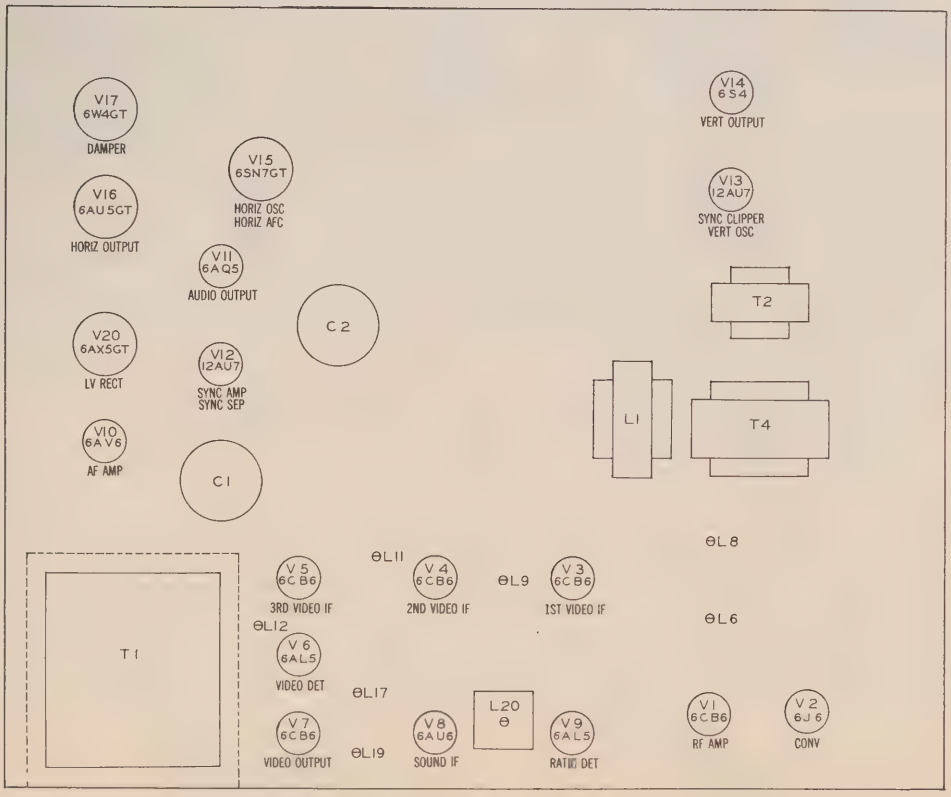
PROPERTY OF
L. F. BLANKENSHIP
[illegible] MEADE ST.
[illegible], COLORADO



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



TOP VIEW



BOTTOM VIEW

TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube, (V15), from its socket.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt battery to the ungrounded lead of a C32, connect the positive lead to chassis.
Remove the converter tube, (V2), and replace it with a 6J6 which has pin 1 removed, this will disable the local oscillator and prevent the possibliity of erroneous indications.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	25.6MC (unmod)	Any	DC probe to point (A). Common to chassis.	A1	Adjust for maximum deflection.
2.	"	"	23.1MC	"	"	A2	"
3.	"	"	24.5MC	"	"	A3	"
4.	"	"	21.75MC	"	"	A4	Adjust for MINIMUM deflection.
5.	"	"	24.5MC	"	"	A5	Hold channel switch between channels while adjusting A5 for maximum deflection.
6.	"	"	"	"	"	A6	Connect a 1000Ω resistor across R16. Adjust A6 for maximum deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	24MC (10MC swp.)	21.75MC 26.25MC	Any	Vert. amp. to Point (A). Low side to chassis.		Check for response curve similar to Fig. 1. If necessary retouch A1 thru A6 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	.001MFD	High side to pin 1, (grid) of 6CB6, (V7). Low side to chassis.	4.5MC (unmod)	Any	DC probe to point (B). Common to chassis.	A7, A8	Adjust for maximum deflection.
9.	"	"	"	"	DC probe to point (C). Common to chassis.	A9	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120 sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	.001MFD	High side to Pin 1, (grid), of 6CB6, (V7). Low side to chassis.	4.5MC (450KC Swp.)	4.5MC	Any	Vert. amp. to Point (B). Low side to chassis.	A7, A8	Disconnect stabilizor capacitor C7. Adjust for maximum amplitude & symmetry as per Fig. 2.
9.	"	"	"	"	"	Vert. amp. to Point (C). Low side to chassis.	A9	Reconnect capacitor C7. Adjust A9 so 4.5MC occurs at center of crossover lines as per Fig. 3. SLIGHTLY retouch A8 for maximum amplitude & straightness of crossover lines.

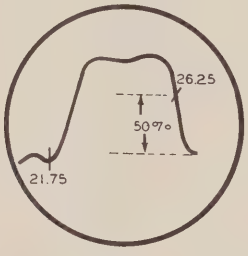


FIG.1

FIG. 2

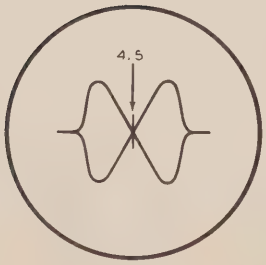


FIG. 3

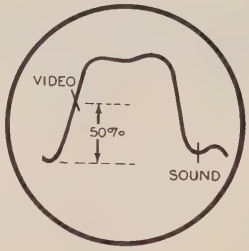


FIG.4

PROPERTY OF
L. F. BLANKENSHIP
DENVER, COLORADO

ALIGNMENT INSTRUCTIONS (CONT.)

OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection. The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms. Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. to point A. Low side to chassis.	A10	Adjust to place sound marker in "notch" as shown in fig. 4. The video marker should be at 50%.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A11	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A12	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A13	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A14	
			183MC (10MC Swp)	185.25MC 187.75MC	8		A15	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A16	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A17	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A18	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A19	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A20	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A21	

THE RF & MIXER PORTION OF THIS RECEIVER HAS BEEN PROPERLY ALIGNED AT THE FACTORY AND IS VERY STABLE. ALIGNMENT OF THIS PORTION SHOULD NOT BE REQUIRED IN THE FIELD.

4.5MC TRAP ADJUSTMENT

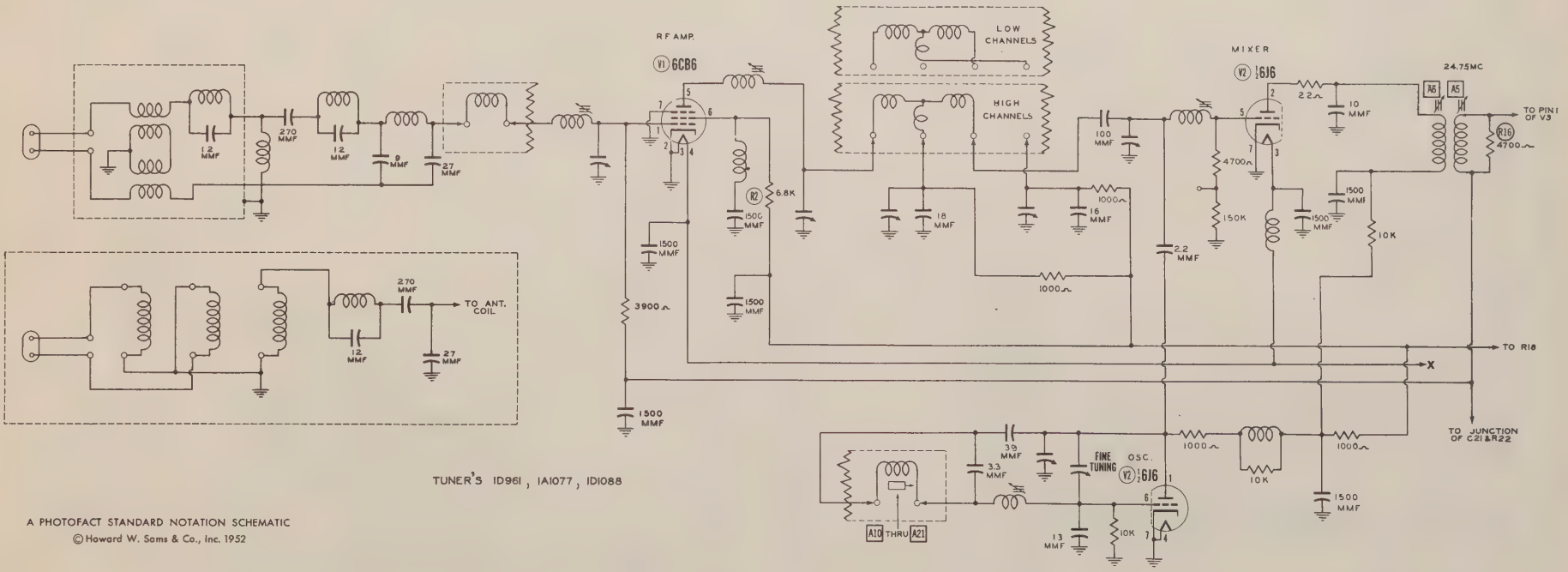
After alignment is completed and set restored to normal operation, tune in a strong TV station and adjust the fine tuning control until sound just begins to appear in the picture. Examine the picture for evidence of 4.5MC interference, (grain appearance in horizontal lines). If interference is noted adjust the 4.5MC trap, (A22), to eliminate it.

RESISTANCE MEASUREMENTS

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	1Meg	0Ω	.1Ω	0Ω	■3.2KΩ	■3.2KΩ	0Ω		
V 2	6J6	■5.7KΩ	■11KΩ	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6CB6	1Meg	47Ω	0Ω	.1Ω	■950Ω	■950Ω	0Ω		
V 4	6CB6	1Meg	47Ω	0Ω	.1Ω	■850Ω	■850Ω	0Ω		
V 5	6CB6	.2Ω	150Ω	0Ω	.1Ω	■850Ω	■850Ω	0Ω		
V 6	6AL5	0Ω	3.3KΩ	.1Ω	0Ω	.3Ω	0Ω	0Ω		
V 7	6CB6	220KΩ	800Ω	.1Ω	0Ω	†8.2KΩ	■750Ω	800Ω		
V 8	6AU6	1.1Ω	0Ω	0Ω	.1Ω	■23KΩ	■23KΩ	150Ω		
V 9	6AL5	10KΩ	10KΩ	.1Ω	0Ω	1Meg	0Ω	1Meg		
V 10	6AV6	10Meg	0Ω	0Ω	.1Ω	0Ω	0Ω	†500KΩ		
V 11	6AQ5	500KΩ	270Ω	0Ω	.1Ω	†1.4KΩ	†1.1KΩ	500KΩ		
V 12	12AU7	■48KΩ	2.2Meg	0Ω	.1Ω	.1Ω	50KΩ	0Ω	270KΩ	0Ω
V 13	12AU7	■5.1KΩ	50KΩ	4.7KΩ	.1Ω	.1Ω	#2.3Meg	1.4Meg	0Ω	0Ω
V 14	6S4	INF	2.7KΩ	1Meg	0Ω	.1Ω	1Meg	INF	INF	#3.8KΩ
V 15	6SN7GT	1.5Meg	†55KΩ	410KΩ	480KΩ	†75KΩ	0Ω	.1Ω	0Ω	
V 16	6AU5GT	470KΩ	0Ω	220Ω	INF	#23Ω	INF	.1Ω	†15KΩ	
V 17	6W4GT	INF	INF	225KΩ	INF	†85Ω	INF	#26Ω	#26Ω	
V 18	1B3GT	PINS 1 THRU 8 HAVE INF RESISTANCE								TOP CAP #167Ω
V 19	5U4G	INF	13KΩ	INF	28Ω	INF	26Ω	INF	13KΩ	
V 20	6AX5GT	#32Ω	0Ω	16Ω	INF	15Ω	#32Ω	.1Ω	70KΩ	
V 21	14EP4	0Ω	60KΩ	PIN 10 #2.2KΩ	PIN 11 ■100KΩ	PIN 12 .1Ω				

ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
M3 IN "TV" POSITION
M4 IN "LO" POSITION
† MEASURED FROM PIN 8 OF V19
■ MEASURED FROM PIN 8 OF V20
MEASURED FROM PIN 3 OF V17

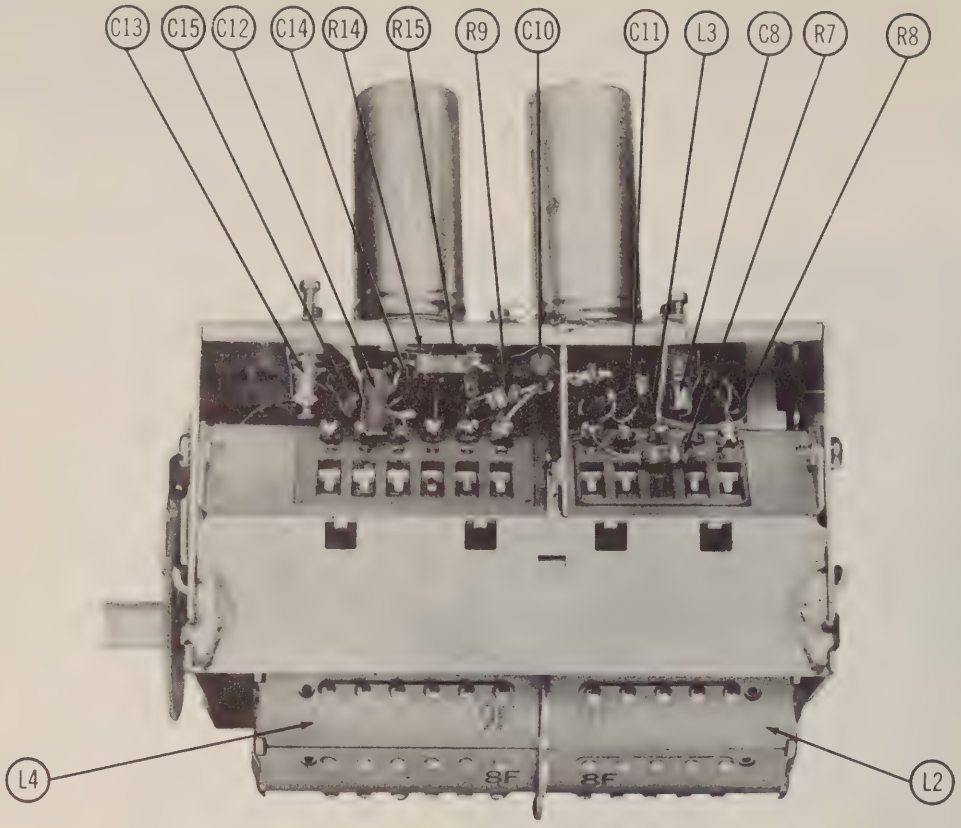


TUNER'S ID961, IA1077, ID1088

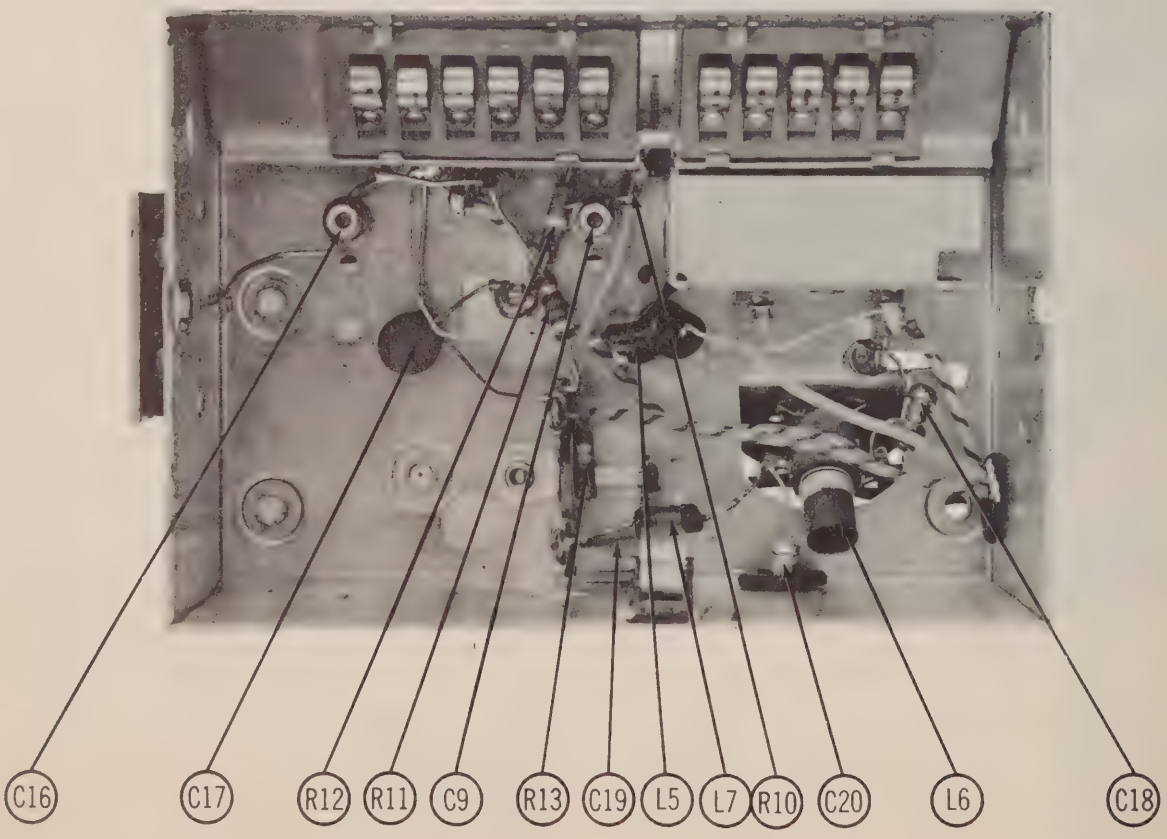
A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1952

ALTERNATE TUNER SCHEMATIC

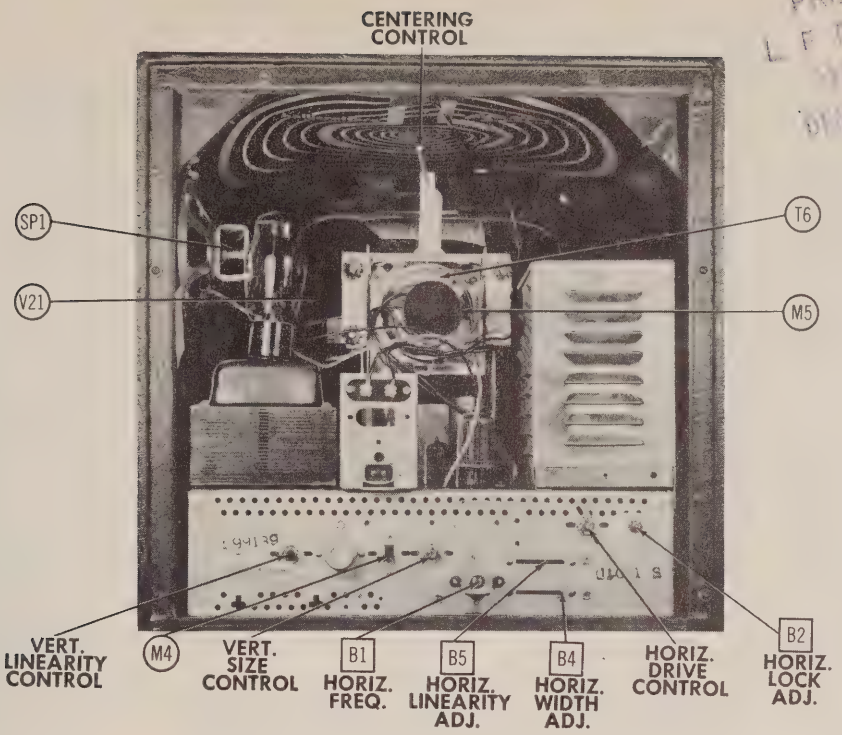


RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW

PROPERTY OF
L. F. BLANKENSHIP
DENVER, COLORADO



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern

Turn the horizontal hold control to fully clockwise.

Adjust the horizontal range slug, (B1), until the blanking bar begins to move into the picture from the left.

Turn the hold control to fully counter-clockwise and momentarily interrupt the signal by switching to another channel and back again.

If more than 4 bars are present turn the horizontal lock trimmer, (B2) slightly clockwise. If less than three bars are present adjust B2 slightly counter-clockwise.

Repeat the check and adjustment of B2 until 3 to 4 bars are present.

Turn the hold control clockwise to synchronize the picture.

Connect the vertical input lead of an oscilloscope thru a 47KΩ resistor to terminal C of L21.

Adjust the waveform slug, (B3) until the broad and narrow peaks of the waveform on the oscilloscope are of equal height as shown in Fig. 5. If necessary during adjustment of B3 adjust B1 to keep the picture synchronized.

Repeat the adjustment of B1 and B2.

Adjust the horizontal drive control clockwise as far as possible without crowding or vertical lines appearing in the picture.

Adjust the width slug, (B4) until the picture is slightly wider than necessary to fill the mask horizontally.

Adjust the horizontal linearity slug, (B5) until the picture is symmetrical from left to right.

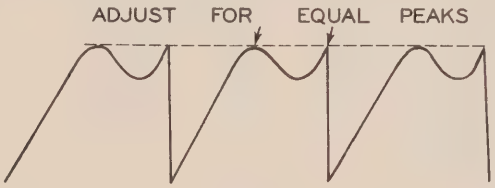


FIG. 5

DISASSEMBLY INSTRUCTIONS

1. Remove 9 push on type control knobs from front panel.
2. Remove 6 wood screws and 1 metal screw for removal of back cover.
3. Disconnect built-in antenna and speaker.
4. Remove 2 wing nuts holding speaker. Remove speaker.
5. Remove 5 chassis bolts. Remove chassis.

NOTE. FOR PICTURE TUBE REMOVAL, IT IS NECESSARY TO REMOVE CHASSIS AS OUTLINED ABOVE.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No	USE	REPLACEMENT DATA: Hallicrafters PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	90X6CB6	6CB6	7CM	
B	RF Amplifier	90X6AG5	6AG5	7BD	
V2	Converter	90X6J6	6J6	7BF	
V3	1st. Video IF Amp.	90X6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	90X6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.	90X6CB6	6CB6	7CM	
V6	Video Detector	90X6AL5	6AL5	6BT	
V7	Video Output	90X6CB6	6CB6	7CM	
V8	Sound IF Amp.	90X6AU6	6AU6	7BK	
V9	Ratio Detector	90X6AL5	6AL5	6BT	
V10A	AF Amplifier	90X6AV6	6AV6	7BT	
B	AF Amplifier	90X6SQ7	6SQ7	6Q	
V11	Audio Output	90X6AQ5	6AQ5	7BZ	
V12A	Sync Amplifier-Sync.Seperator	90X12AU7	12AU7	9A	
B	Sync Amp -Sync. Sep	90X6SN7GT	6SN7GT	8BD	
V13A	Sync. Clipper-Vert. Oscillator	90X12AU7	12AU7	9A	
B	Sync Clipper-Vert. Oscillator	90X6SN7GT	6SN7GT	8BD	
V14	Vert. Output	90X6S4	6S4	9AC	
V15	Horiz. AFC-Horiz. Oscillator	90X6SN7GT	6SN7GT	8BD	
V16A	Horiz. Output	90X6AU5GT	6AU5GT	6CK	
B	Horiz. Output	90X6AV5GT	6AV5GT	6CK	
V17	Damper	90X6W4GT	6W4GT	4CG	
V18	HV Rectifier	90X1B3GT	1B3GT	3C	
V19	LV Rectifier	90X5U4G	5U4G	5T	
V20	LV Rectifier	90X6AX5GT	6AX5GT	6S	

CATHODE-RAY TUBE

ITEM No	REPLACEMENT DATA: Hallicrafters PART No	REPLACEMENT DATA: SYLVANIA PART No	RTMA BASE TYPE	NOTES
V21A	14EP4	14CP4	12D	① Used in Model 14808
B	20CP4	20CP4	12D	② Used in Models 20823 & 20823B
		20CP4A		③ Circuit changes necessary - low voltage focusing circuit required.
		20DP4		
		20DP4A		
		20HP4		
		20HP4A		

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Hallicrafters PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	60	450	45Bl73	AFH2-61	UPT62245			TVL-2770	▲ Filter
B	40	450		PRS50/100	BRH501			TVA-1510	▲ Filter
C	70	50							▲ Vert.Output Cathode
C2A	40	250	45Bl74	AFH3-44	UP4445C			TVL-4739	▲ Filter
B	40	250		PRS25/35	BR4025				▲ Filter
C	40	450							▲ Audio Output Dec.
E	20	25							Audio Output Cathode
C3	5	50	45Bl75	PRS150/4		BR550		TVA-1303	Horiz. Output Cathode
C4A	10	450	45A172	PRS450/10-10		BRD1145A		TVA-2732	Decoupling
B	10	450							Decoupling
C5	8	475	45A103	PRS500/8		BR550A		TVA-1902	Vert. Output Dec.
C6	100	10	45Bl70	PRS12/100		BRH12A		TVA-1150	Video Output Cathode
C7	5	50	45Bl75	PRS150/4		BR550		TVA-1303	Stabilizing Cap.
C8	3-9				829-10				Variable Trimmer
C9	.5-3				829-3				Variable Trimmer
C10	130			SI130	D6-121	TM5T12	GP2K-121	5GA-T12	RF Amp. Decoupling
C11	1000			SI1000	D6-102	TM5D1	GP2L-102	5HK-D1	RF Amp. Fil. Bypass
C12	100			SI100	D6-101	TM5T1	GP1K-101	5GA-T1	RF Coupling
C13	3-9				829-3				Variable Trimmer
C14	20				TCN-20		N750K-200		Osc. Grid Cap.
C15	10			SI10NP0	TCZ-10		NP0K-100	5TCC-Q1	Fixed Trimmer
C16	.5-3				829-3				Variable Trimmer
C17A	1000			BPD-2X001	DD-2-102	TM5DD1	812-001	5HK-2D1	Conv. Fil. Bypass
B	1000								RF Bypass
C18	10			SI10NP0	TCZ-10		NP0K-100	5TCC-Q1	Fixed Trimmer
C19	5000		47A168	BPD-005	DD-502	TM5D5	81L-005	5HK-D5	Mixer Plate Dec.
C20	300			SI300	D6-301		GP3K-301	5GA-T3	IF Coupling
C21	5000		47A168	BPD-005	DD-502	TM5D5	81L-005	5HK-D5	AGC Filter
C22	5000		47A168	BPD-005	DD-502	TM5D5	81L-005	5HK-D5	1st. Video IF Dec.
C23	5000		47A168	BPD-005	DD-502	TM5D5	81L-005	5HK-D5	AGC Filter
C24	5000		47A168	BPD-005	DD-502	TM5D5	81L-006	5HK-D5	2nd. Video IF Dec.
C25	5000		47A168	BPD-005	DD-502	TM5D5	81L-005	5HK-D5	2nd. Video IF Fil.
C26	68			SI68NP0	TCZ-68		NP0-333-680		Fixed Trimmer
C27	5000		47A168	BPD-005	DD-502	TM5D5	81L-005	5HK-D5	3rd. Video IF Dec.
C28	5000		47A168	BPD-005	DD-502	TM5D5	81L-005	5HK-D5	3rd. Video IF Cathode
C29	5000		47A168	BPD-005	DD-502	TM5D6	81L-005	5HK-D5	3rd. Video IF Fil.
C30	10		45B2100K5	SL10	D6-100		5GA-Q1		Video Dec. Filter *
C31	5		47B20050K5	SI5N750	TCN-5		N750K-050		Video Det. Filter *
C32	.5	▨	46A177	PZ88-5		PZ2P5		2TM-P5	AGC Filter
C33	5	25	46A177	PZ88-5		PZ2P5		2TM-P5	Video Coupling
C34	47			SI47N750	TCN-47		N750K-470	5TCU-Q47	Fixed trimmer.
C35	.1	▨	46AU104J	PZ88-1		DF-104	PZ2P1	2TM-P1	Video Coupling
C36	2.2		47A180-4		TCZ-2.2			NP0K-2R2	Sound IF coupling
C37	47			SI47N750	TCN-47		N750K-470	5TCU-Q47	Fixed trimmer
C38A	4000		47A218	BPD-3X004	D6-402	TM5DD4	822-004	5HK-2D4	Sound IF decoupling
B	4000								Sound IF cathode
C39	330		47B20033K5	SI330	D6-331		GP3K-331	5GA-T33	Diode Load cap.
C40	1000		47B20A102M5	SI1000	D6-102	TM5DI	GP2L-102	5HK-DI	De-Emphasis
C41	.01	600	46AY103J	PZ88-01	D6-103	PTE6SI	GP2-333-103	5TM-SI	Audio Coupling *
C42	.01	600	46AY103J	PZ88-01	D6-103	PTE6SI	GP2-333-103	5TM-SI	Audio Coupling
C43A	.01								Audio Coupling
B	250		149A017		†PC-80			†102C1	AF Amp. Plate Bypass
C									Audio Output Grid
C44	.01	600	46AY103J	PZ88-01	D6-103	PTE6SI	GP2-333-103	6TM-SI	Audio Output Plate
C45	220	500	47KZ0B221K	1469-00025	D6-221	5R5T25	GP2K-221	5GA-T22	Sync. Coupling

CAPACITORS (CONT.)

ITEM No	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Hallicrafters PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C46	.05	600	46AY503J	PZ88-05	DF-503	PTE6S5		6TM-S5	Sync. Coupling
C47	.05	600	46AY503J	PZ88-05	DF-503	PTE6S5		6TM-S5	Sync. Coupling
C48	88		47BA0680K5	SI68	D6-680	5R5Q7	GP1K-680	5GA-Q68	Sync. Amp. Cathode
C49	.5	200	46AT504J	PZ88-5		PJ2P5		2TM-P5	Sync. Clipper Cathode
C50A	.002			PZ88-002		PTE6D2	GP2-333-202		Vert. Integrator Net.
B	.005		49A015	PZ88-005	◆PC-100	PTE6D5	GP2-333-502	◆101C1	Vert. Integrator Net.
C	.005			PZ88-005		PTE6D5	GP2-333-502		Vert. Integrator Net.
C51	6800	500	47X35B682K					6MS-27	Vert. Osc. Grid Cap.
C52	5000		47A188	BPD-005	DD-502	TM5D5	81L-005	5HK-D5	Vert. Hold Cont. Bypass
C53	1000		47B20A102M5	SI1000	D6-102	TM5DI	GP2L-102	5HK-DI	Vert. Osc. Plate
C53	.05	600	46BR475L6	PZ88-05	DF-503	PTE6S5		6TM-S5	Vert. Discharge
C55	.05	200	46AU503J	PZ2P5-05	DF-503	PJ2S5		6TM-S5	RF Bypass *
C56	.1	600	46AX104J	PZ88-1	DF-104	PTE6P1		6TM-P1	Vert. Sweep Coupling
C57	.05	600	46AY503J	PZ88-05	DF-503	PTE6S5		6TM-S5	Fixed Trimmer *
C58	.01	600	46AY103J	PZ88-01	D6-103	PTE6SI	GP2-333-103	6TM-SI	Vert. Sweep Coupling
C59	.01	600	46AY103J	PZ88-01	D6-103	PTE6SI	GP2-333-103	6TM-SI	Integrator Net.
C60	.05	600	46AY503J	PZ88-05	DF-503	PTE6S5		6TM-S5	RF Bypass
C61	120	500	47X20B121K	1469-00015		5R5T15			Horiz. Syn. Coupling
C62	82	500	47X20B820K						Horiz. Syn. Coupling
C63	330	500	47X20B331K	1469-00035					Voltage Divider
C64	.05	600	46AY503J	PZ88-05	DF-503	PTE6S5		6TM-S5	Horiz. AFC Plate
C65	.5	200	46AT504J	PZ88-5		PJ2P5		2TM-P5	Horiz. AFC Filter
C66	.02	600	46AY203J	PZ88-02	DF-203	PTE6S2		6TM-S2	Horiz. AFC Filter
C67	.05	600	46AY503J	PZ88-05	DF-503	PTE6S5		6TM-S5	Horiz. AFC Filter
C68	330	500	47X20B331K	1469-00035					Horiz. Osc. Grid Cap.
C69	.01	400	46BR103E4	P488-01	D6-103	PTE4SI	GP2-333-103	4TM-SI	Fixed Trimmer
C70	820	500	47X20B820K						Horiz. Feedback
C71	820	500	47X25B821K						Horiz. Discharge
C72	4700	500	47X35B472K	1464-0005		1DS5D5		6S-25	Horiz. Sweep Coupling
C73	.047	600	46AY503J	PZ88-047	DF-503	PTE6S47		6TM-S47	Horiz. Output Screen
C74	.1	600	46AX104J	PZ88-1		PTE6P1		6TM-P1	Damper Filter
C75	.03	600	46AY303J	PZ88-03		PTE6S3		6TM-S3	Damper Filter
C76	.03	600	46AY303J	PZ88-03		PTE6S3		6TM-S3	Horiz. Sweep Coupling
C77	.1	600	46AX104J	PZ88-1	DF-104	PTE6P1		6TM-P1	Horiz. Sweep Coupling
C78	500	20000	47A223		HV20C	TV3-502	MM-C20T5		HV Filter
C79	.01	400	46BR103J6		4892GXY-01		PJ4SI	4TM-SI	Line Filter
C80	.01	400	46BR103J6		4892GXY-01		PJ4SI	4TM-SI	Line Filter

* Not used in all models
† Items C43A, C43B, C43C, R50A, R50B are combined in one unit
When replacing items separately C43B and C43C should total 250MMF
◆ Items C50A, C50B, C50C, R61A, R61B, R61C are combined in one unit

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Hallicrafters PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	REPLACEMENT DATA: CENTRALAB PART No.	INSTALLATION NOTES
				Concentrikit			
R1A	1Meg	½	25B917	B11-137 *	RTV-40	SBB-688	Vert. Hold Control - Panel
B	50kΩ	½		B11-123 *			Horiz. Hold Control - Rear
C	Shaft end		Not Req.	E202 *	Not Req.	Not Req.	Attach per instructions in Concentrikit
				Concentrikit			
R2A	2500Ω	½	25B898	B11-111 *	RTV-234	SBB-614-S	Contrast Control - Panel
B	1Meg	½		B11-137 *			Volume Control - Rear
C	Shaft end		Not Req.	E202 *			Attach per instructions in Concentrikit
D	Switch		Not Req.	76-1 *			Attach per instructions in Concentrikit
R3A	2500Ω	½	25B895		RTV-235		Focus Control - Panel
B	50kΩ	½					Brightness Control - Rear
R4A	5000Ω	½	25B912	Q11-114	AG-19-S	AN-10	Vert. Linearity Control
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Attach to R4A per instructions
R5A	2.5Meg	½	25B911	Q11-210	AG-84-S	AN-83	Height Control
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Attach to R5A per instructions
R6A	50kΩ	½	25A858	Q11-123	AG-44-S	AN-31	Horiz. Drive Control
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Attach to R6A per instructions

* Additional parts to be used with Concentrikit

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Hallicrafters PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
					ALL RESISTORS ± 10% UNLESS OTHERWISE NOTED
R7	3900Ω	½		BTS-3900	Antenna Coil Shunt
R8	4700Ω	½		BTS-4700	RF Amp Grid
R9	10KΩ	½		BTS-10KΩ	RF Coil Shunt
R10	2200Ω 20%	½		BTS-2200	RF Amp. Decoupling
R11	4700Ω	½		BTS-4700	Mixer Grid
R12	220KΩ 20%	½			Mixer Grid
R13	10KΩ	½		BTS-10K	Mixer Plate - See Note 1
R14	10KΩ	½		BTS-10K	Osc. Grid
R15	4700Ω	½		BTS-4700	Osc. Plate
R16	4700Ω	½	23X20X472K	BTS-4700	1st. Video IF Amp. Grid
R17	47Ω	½	23X20X470K		1st. Video IF Amp. Cathode
R18	100Ω	½	23X20X101K	BTS-100	Decoupling
R19	100Ω	½	23X20X101K	BTS-100	Decoupling
R20	100Ω	½	23X20X101K	BTS-100	Decoupling
R21	100Ω	½	23X20X101K	BTS-100	Decoupling
R22	150Ω	½	23X20X151K	BTS-150	AGC Network
R23	150Ω	½	23X20X151K	BTS-150	AGC Network
R24	12KΩ	½	23X20X123K	BTS-12K	2nd. Video IF Coil Shunt
R25	47Ω	½	23X20X470K		2nd. Video IF Amp. Cathode
R26	10KΩ	½	23X20X103K		3rd. Video IF Coil Shunt
R27	150Ω	½	23X20X151K	BTS-150	3rd. Video IF Amp. Cathode
R28	1Meg	½	23X20X105M	BTS-1Meg	AGC Network
R29	3300Ω	½	23X20X332K	BTS-3300	Video Det. Diode Load
R30	220KΩ 20%	½	23X20X224M	BTS-220K	Video Amp. Grid
R31	150Ω	½	23X20X151K	BTS-150	Video Amp. Cathode
R32	10KΩ	½	23X20X103K	BTS-10K	Isolation
R33	220KΩ	½	23X20X224M	BTS-220K	Isolation
R34	5600Ω	2	23X40X562K	BTS-5600	Video Amp. Plate
R35	6800Ω	½	23X20X682K	BTS-6800	Voltage Divider
R36	1500Ω	½	23X30X153K	BTA-1500	Decoupling
R37	10KΩ	½	23X20X103K	BTS-10K	Picture Tube Grid
R38	100KΩ 20%	½	23X20X104M	BTS-100K	Picture Tube Cathode
R39	1000Ω	5	24A921	1 3/4A-1000	Focus Control Shunt - Wire Wound
R40	47.00Ω	½	23X20X472K	BTS-4700	Vert. Blanking Network
R41	680Ω	½	23X20X681M	BTS-680	Vert. Damping
R42	47KΩ	½	23X20X473K	BTS-47K	Voltage Divider
R43	150Ω	½	23X20X151K	BTS-150	Sound IF Amp. Cathode

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Hallicrafters PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R44	22KΩ	½	23X20X223K		Sound IF Amp. Decoupling
R45	270Ω	½	23X20X271K	BTS-270	Balancing
R46	33KΩ	½	23X20X333K	BTS-33K	De-emphasis
R47	10KΩ 5%	½	23X20X103J	BTS-10K 5%	Ratio Det. Diode Load
R48	10KΩ 5%	½	23X20X103J	BTS-10K 5%	Ratio Det. Diode Load
R49	10Meg 20%	½	23X20X106M	BTS-10Meg	AF Amp. Grid
R50A	500KΩ		† 49A017		AF Amp. Plate
B	500KΩ	½			Output Grid
R51	270Ω	1	23X30X271K	BTA-270	Output Cathode
R52	15KΩ	10	24A922	1 3/4A-15K	Bleeder - Wire Wound
R53	2.2Meg 20%	½	23X30X225M	BTS-2.2Meg	Sync. Seperator Grid
R54	47KΩ	2		BTS-47K	Sync. Seperator Plate
R55	270KΩ 20%	½	23X20X274M	BTS-270K	Sync. Amp. Cathode
R56	820KΩ 20%	½	23X20X824M	BTS-820K	Sync. Amp. Plate
R57	2200Ω	2	23X20X222K	BTS-2200	Sync. Clipper Plate
R58	2200Ω		23X20X222K	BTS-2200	Sync. Clipper Plate
R59	47KΩ		23X20X473K	BTS-47K	Sync. Clipper Grid
R60	4700Ω		23X30X472K	BTS-4700	Sync. Clipper Cathode
R61A	22KΩ			BTS-22K	Integrator Network
B	8200Ω		◆ 49A015	BTS-8200	Integrator Network
C	8200Ω			BTS-8200	Integrator Network
R62	820KΩ		23X30X824K	BTS-820K	Vert. Osc. Grid - See Note 2
R63	1Meg	1	23X30F105M	BTA-1Meg	Vert. Osc. Plate *
R64	1Meg	1	23X30X105M	BTS-1Meg	Vert. Output Grid
R65	1000Ω	1	23X30X102K	BTA-1000	Vert. Output Cathode
R66	8200Ω	1	23X30X822K	BTS-8200	Vertical Peaking
R67	120KΩ 5%	1	23X30BF124K	BTA-120K 5%	Voltage Divider
R68	68KΩ		23X20X683K	BTS-68K	Voltage Divider
R69	330KΩ		23X20X334K	BTS-330K	Horiz. AFC Grid
R70	820KΩ		23X20X824K	BTS-820K	Horiz. AFC Grid
R71	82KΩ	1	23X30X823K	BTA-82K	Horiz. AFC Cathode
R72	330KΩ 5%	1	23X30BF334J	BTA-330K 5%	Horiz. AFC Cathode
R73	3900Ω	2	23X20X392K	BTS-3900	Horiz. AFC Filter
R74	150KΩ		23X20X154K	BTS-150K	Horiz. Osc. Grid
R75	47KΩ	1	23X30BF473K	BTA-47K	Horiz. Osc. Plate
R76	8200Ω		23X20X822K	BTS-8200	Transformer Shunt
R77	12KΩ		23X20X123K	BTS-12K	Voltage Divider
R78	330KΩ		23X20X334K	BTS-330K	Horiz. AFC Feedback
R79	470KΩ 20%		23X20X474M	BTS-470K	Voltage Divider
R80	470KΩ 20%		23X20X474M	BTS-470K	Horiz. Output Grid
R81	220Ω	2	24A925		Horiz. Output Cathode - Wire Wound
R82	15KΩ	2	23X40X153K	BTS-15K	Horiz. Output Screen
R83	47Ω	2	23X20X470K		Parasitic Suppressor
R84	200Ω	5	24A926	1 3/4A-200	Damper Plate - Wire Wound
R85	2200Ω	1	23X30X222K	BTA-2200	Decoupling
R86	3.3Ω	½	23X20X033K		HV Rectifier Filament
R87	1Meg	1	23X30X105M		HV Filter
R88	750Ω	10	24A920	1 3/4A-750	Filter - Wire Wound
R89	150KΩ 20%	½	23X20X154M	BTS-150K	Fuse Shunt
R90	2200Ω	½	23X20X222K	BTS-2200	Video Amp. Cathode
R91	270KΩ 20%	½		BTS-270K	Line Isolation - See Note 3

Note 1. Some Models use a 15KΩ Resistor in this application
Note 2. Some Models use a 1Meg Resistor in this application
◆ Items R50A, R50B, C43A, C43B, C43C are combined in one unit
◆ Items R61A, R61B, R61C, C50A, C50B, C50C are combined in one unit
Note 3. Not used in all Models.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: Hallicrafters PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.
T1	117VAC ②1.75A	620VCT 190ADC Tapped ②400VCT .080ADC	5VAC A3A	6.3VAC ②8.7A	52C204		P-3073	
				SEC. 4 6.3VAC ②1.2A				

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC	REPLACEMENT DATA: Hallicrafters PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	NOTES
T2	190Ω	1400Ω	55C115	A-8111	A-3000	TB0-1 ①	Vert. Oscillator Trans.
T3	162Ω	32Ω	55C161	A-8130	HV0-7		Hor. Output Trans.
	Tapped ② 14Ω	Tapped ③ 8.5Ω & ④ 29Ω SEC 2 0Ω	55C153 ②				
T4	1600Ω		55B151	A-8141	A-3039		Vert. Output Trans.
	Tapped ② 5Ω						
T5A	18Ω		53C197	DT-9	MDF-70		Hor. Deflection Coils
B	45Ω						Vert. Deflection Coils
T6	1000Ω		51A1287 51B1246 ③ 51-1373 ③				Focus Coil

① Mount on top of chassis.
② Alternate transformer
③ Alternate focus coil

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: Hallicrafters PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	INSTALLATION NOTES
T7	3.4KΩ	2.9Ω	280Ω	.5Ω	55B150	A-3825④	A-3019④	R0-302⑤	④ Drill new mounting holes ⑤ Duplicate original mounting

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	Hallicrafters PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	P. M.	2.9Ω	85C103	ST-105 Mod. P5-X	5A1	
	CONE DIA.	V. C. DIA.				
SP1B	5"	9/16"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	Hallicrafters PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.190ADC	85Ω	1.3 Hy.	56C116	C-2327	C-2994 ⑥	TR-4200⑥	⑥ Drill one new Mounting Hole.

COILS (RF-IF)

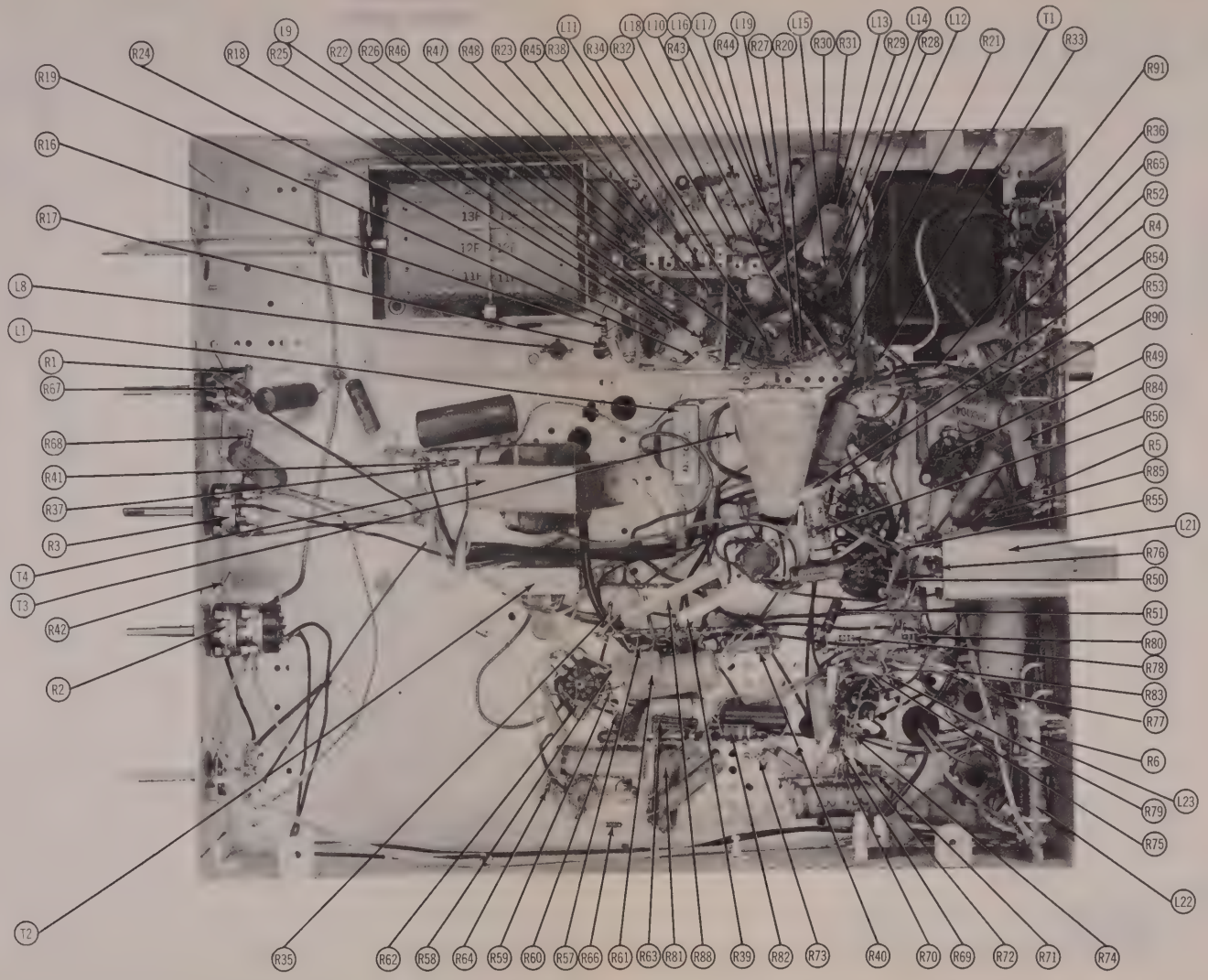
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	Hallicrafters PART No.	MERIT PART No.	
L2	Ant. Coil	0Ω		121A003		Channel 2
L3	Fil. Choke	0Ω				
L4	RF, Mixer Grid & Osc. Coils	0Ω		121A015		Channel 2
L5	Fil. Choke	0Ω				
L6	Conv. Plate	.3Ω		121A032		
L7	RF Choke	0Ω				
L8A	1st. Video IF	.2Ω		51B1301		Used only with 1D1055 Tuner
L8B	1st. Video IF	.		51B1334		Used only with tuners 1D961, 1A1077 & 1D1088
L9	2nd. Video IF	.2Ω	.2Ω	50A475		
L10	Fil. Choke	0Ω		53A200		
L11	3rd. Video IF	.2Ω	.2Ω	51B1332 or 50A476		Includes 21.75MC Trap.
L12	4th. Video IF	.2Ω	.2Ω	50A477		
L13	RF Choke	2.2Ω		53B008		
L14	Peaking Coil	8Ω		51A1256		Wound on 6.8KΩ Resistor
L15	Peaking Coil	11Ω		51A1260		Wound on 2.2KΩ Resistor
L16	Peaking Coil	10.5Ω		51A1257		Wound on 15KΩ Resistor
L17	4.5MC Trap.	1.2Ω		51B1333 or 50B474		
L18	Peaking Coil	18Ω		51A1259		Wound on 2.2KΩ Resistor
L19	Sound IF	1.2Ω		51B1333 or 59B474		
L20	Ratio Det. Trans.	4Ω	.6Ω	50C473		Tap ⓐ .8Ω
L21	Horiz. Osc.	72Ω	42Ω	51B1242		
L22	Width Coil	24Ω		51B1330 or 51B1341	MWC-1	
L23	Horiz. Lin.	5.5Ω		51B1331 or 51B1340		Tap ⓐ 1.5Ω

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			Hallicrafters PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG Slo-Blo Pigtail	1/4A. 125V.	39A344		315.250		MDV-1/4	

MISCELLANEOUS

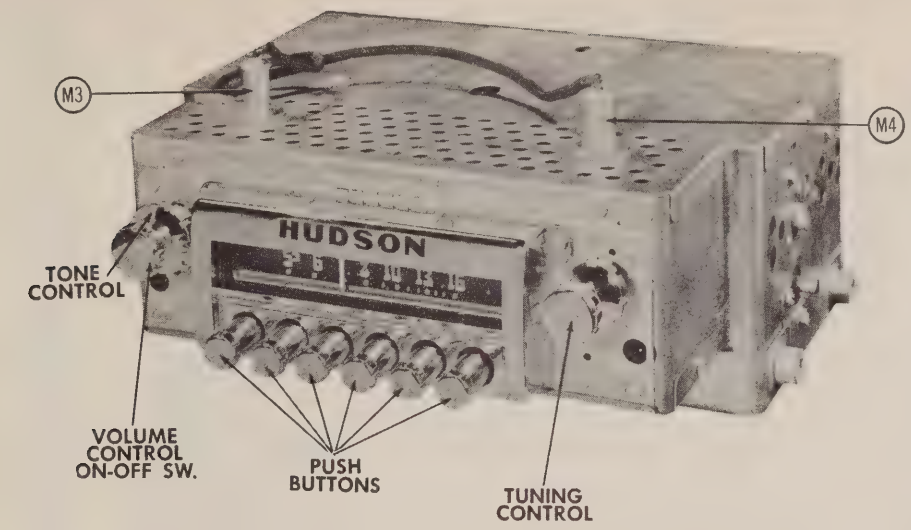
ITEM No.	PART NAME	Hallicrafters PART No.	NOTES
M2A	RF Tuner	1D1055	
B	RF Tuner	1D961	Alternate
C	RF Tuner	1A1077	Alternate
D	RF Tuner	1D1088	Alternate
M3A	Switch	60B435	BW-Color (Some Models use as TV-Phono Sw.)
B	Switch	60B428	Alternate
M4	Switch	60A249	Hi-Lo Line
M5	Ion Trap	21A101	
B2	Trimmer	44A391	Horiz. Lock (7-100MMF)
	Ant. Coils	121A004	Channel 3
	Ant. Coils	121A005	Channel 4
	Ant. Coils	121A006	Channel 5
	Ant. Coils	121A007	Channel 6
	Ant. Coils	121A008	Channel 7
	Ant. Coils	121A009	Channel 8
	Ant. Coils	121A010	Channel 9
	Ant. Coils	121A011	Channel 10
	Ant. Coils	121A012	Channel 11
	Ant. Coils	121A013	Channel 12
	Ant. Coils	121A014	Channel 13
	RF, Mixer Grid & Osc. Coil	121A016	Channel 3
	RF, Mixer Grid & Osc. Coil	121A017	Channel 4
	RF, Mixer Grid & Osc. Coil	121A018	Channel 5
	RF, Mixer Grid & Osc. Coil	121A019	Channel 6
	RF, Mixer Grid & Osc. Coil	121A020	Channel 7
	RF, Mixer Grid & Osc. Coil	121A021	Channel 8
	RF, Mixer Grid & Osc. Coil	121A022	Channel 9
	RF. Mixer Grid & Osc. Coil	121A023	Channel 10
	RF, Mixer Grid & Osc. Coil	121A024	Channel 11
	RF, Mixer Grid & Osc. Coil	121A025	Channel 12
	RF, Mixer Grid & Osc. Coil	121A026	Channel 13
	Knob	15B234	Off/On Volume, Brightness & Vert. Hold
	Knob	15B269	Contrast, Focus & Horiz. Hold
	Knob	15B293	Channel Selector
	Knob	15A299	Fine Tuning
	Knob	15D377	TV - Phono



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PROPERTY OF
L. F. BLANKENSHIP
3984 WILLIS ST.
DENVER, COLORADO

HUDSON MODELS 225908 (Late)
(Ch. 749-1), 229403 (Ch. 749-2)



TRADE NAME	Hudson Models 225908 (Late) (Ch. 749-1), 229403 (Ch. 749-2)
MANUFACTURER	Sylvania Electric Prod., Inc., Radio & Television Div., 1292 Niagara St., Buffalo, N.Y.
TYPE SET	Battery Operated Custom Built Automobile Superheterodyne Receiver
TUBES (Six)	Types 6SK7GT RF Amp., 6SA7GT Conv., 6SK7GT IF Amp., 6SQ7GT Det.-AVC-AF Amp., 6V6GT Audio Output, 6X5GT Rectifier
POWER SUPPLY	6 Volt Storage Battery — RATING 7.0 Amp @ 6.3 Volts DC
TUNING RANGE—BROADCAST	540-1600 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
	.1MFD	High side to pin 8 (grid) of 6SA7. Low side to chassis.	265 KC (400∿ Mod)	High Freq. end stop	Across Voice Coil	A1, A2, A3, A4	Adjust in order given for maximum output.
2.	Fig. 1	High side through dummy to ant. receptacle. Low side to chassis.	1625 KC	"	"	A5, A6, A7	Adjust in order given for maximum output. Turn pointer "adjust" screw for correct dial calibration, if necessary.
	In the event of a core or coil replacement or in case one has been tampered with, perform the following steps in place of Step 2.						
2A	Screw the cores A8, A9 and A10 all the way out of coils.						
3.	Fig. 1	High side through dummy to ant. receptacle. Low side to chassis.	1625 KC	High Freq. end stop	Across Voice Coil	A5, A6, A7	Adjust in order given for maximum output.
4.	"	"	1400 KC	1400 KC	"	A8, A9, A10	These adjustments made with cores returned to their original position (Approx. 11/16 inch from end of coil form). Adj. in order given for maximum output. Repeat steps 3 and 4 until no further improvement is noted.
	If high frequency tuning range is found to be greater or less than 1610 KC. The lug stop near the volume control should be bent to limit pointer travel to 1610 KC. After set is installed and antenna fully extended tune in a weak station near 1200 KC and readjust A7 for maximum volume.						

SENSITIVITY ADJUSTMENT

The sensitivity control R2 should not be readjusted unless it is definitely known to be out of adjustment. To adjust, set the control to obtain 2.0 volts at pin 5 of V3.

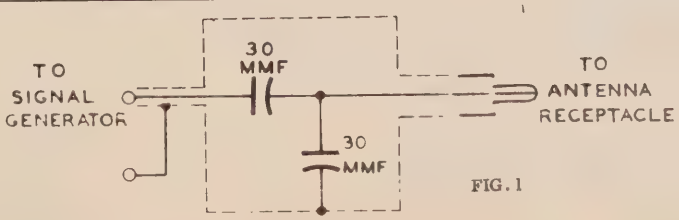


FIG. 1

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		SYVLANIA PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	6SK7GT	6SK7GT	8N	
V2	Converter	6SA7GT	6SA7GT	8AD	
V3	IF Amplifier	6SK7GT	6SK7GT	8N	
V4	Det-AVC-AF Amp.	6SQ7GT	6SQ7GT	8Q	
V5	Audio Output	6V6GT	6V6GT	7AC	
V6	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	SYLVANIA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	20	350	161-2000	AFH-2-50		UP2145		TVL-3634	■Filter
B	10	300							▲ Filter
C2	10000		168-0002D	BPD-01	DD-104	TM5S1	821-01	5HK-S1	RF Coupling
C3	100	500	163-0100	1468-0001	D6-101	5W5T1	GP1K-101	1FM-31	AVC Filter
C4	.047	200	160-02147	P288-047	DF-503	PTE4S47		2TM-S47	AVC Filter
C5	.047	400	160-04147	P488-047	DF-503	PTE4S47		4TM-S47	Screen Bypass
C6	33	500	163-0033	S133	D6-330		GP1K-330	5GA-Q33	RF Coupling
C7	50	500	163-0005	1469-00005		5R5Q5		MS-45	Fixed Trimmer
C8	230		165-0230						Fixed Trimmer
C9	.047	200	160-02147	P288-047	DF-503	PTE4S47		2TM-S47	IF Amp. Cathode Bypass
C10	4000		166-4000D	BPD-004	D6-402	TM5D4	GP2-333-402	1FM-24	Audio Coupling
C11	220	500	163-0220	1468-00025	D6-220	5W5T25	GP2K-221	1FM-325	AF Amp. Plate Bypass
C12	10000		168-0002D	BPD-01	DD-103	TM5S1	821-01	5HK-S1	Audio Coupling
C13	.0047	400	160-04247	P688-0047	D6-472	PTE6D47	GP2-333-472	6TM-D47	Tone Comp.
C14	.022	200	160-02122	P488-022	DF-203	PTE4S22		4TM-S22	Tone Comp.
C15	.0056	600	160-06256						Audio Output Plate
C16	.0082	1600	160-16282						Buffer Cap.
C17	.5	100	169-0001	P185-5		GT2P5		68P20	Hash Filter

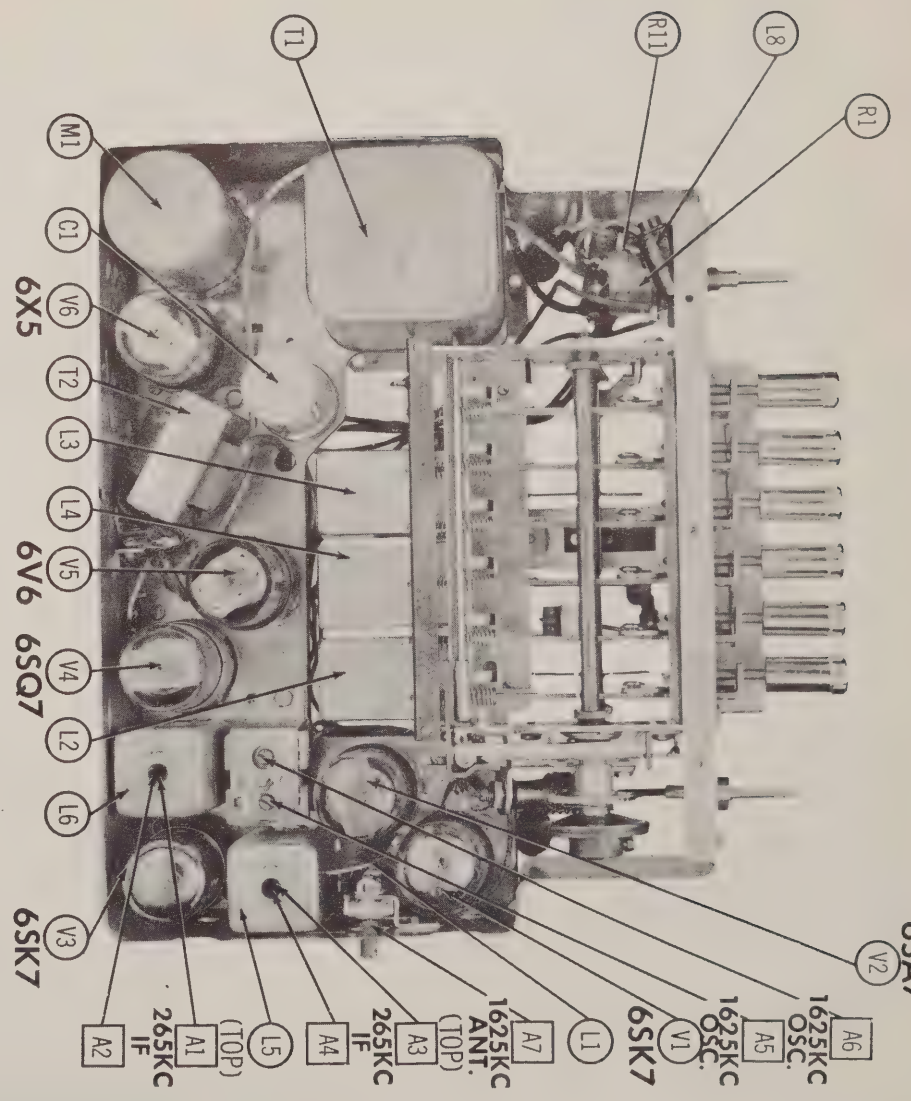
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESIST-ANCE	WATTS	SYLVANIA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	1.5Meg	½	157-0013				Tone Control - Panel
B	250KΩ	½					Volume Control & SW-Tapped@ 50KΩ rear
R2	2000Ω	1	159-0004				Sensitivity Control-Wire wound-See Note

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	SYLVANIA PART No.	IRC PART No.	
R3	1Meg	½	181-0105		RF Amp. Grid
R4	10KΩ	1	182-0103		RF Amp. Plate
R5	1Meg	½	181-0105		Converter Grid
R6	22KΩ	½	181-0223		Osc. Grid
R7	5.6Meg	½	181-0565	BTS-5.6Meg	AVC Network
R8	1Meg	½	181-0105	BTS-1Meg	AVC Network
R9	22KΩ	½	181-0223		Bleeder
R10	12KΩ	2	183-0123		IF Amp. Screen
R11	22KΩ	½	181-0223	BTS-22K	Tone Compensation
R12	15Meg	½	181-0156	BTS-15Meg	AF Amp. Grid
R13	330KΩ	½	181-0334	BTS-330K	AF Amp. Plate
R14	330KΩ	½	181-0334	BTS-330K	Output Grid
R15	270Ω	1	182-0271	BTS-270	Output Cathode
R16	1800Ω	2	183-0182	BTB-1800	Filter
R17	82Ω	½	181-0820	BTS-82	Hash Suppressor
R18	82Ω	½	181-0820	BTS-82	Hash Suppressor

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER VIBRATOR

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	SYLVANIA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	6.3VDC @ 3.8A	540VCT .52ADC			141-0012	P-6473 ①	P-4079	VT-6

① Drill new mounting holes

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SYLVANIA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	5.8KΩ	3Ω	550Ω	.5Ω	143-0004	A-3878	A-2930	R0-9	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	SYLVANIA PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	P.M.	3Ω	539-0006 538-6900 ①	ST-810 Mod. P69-V	69A2	① Alternate Electro-Dynamic Speaker
	CONE DIA.	V. C. DIA.				
SP1B	6" x 9"	3/4"				

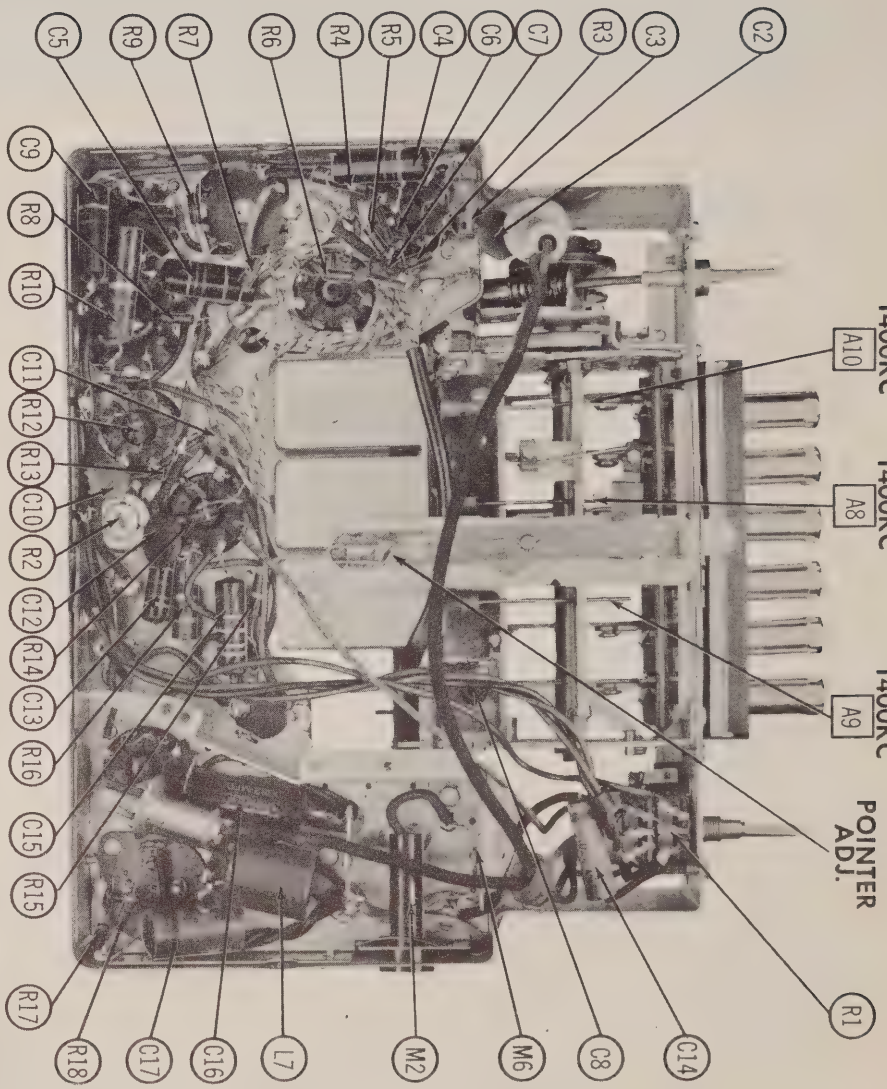
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	SYLVANIA PART No.	MERIT PART No.	
L1	Ant. Hash choke	.7Ω		148-0001		
L2	Ant. Coil	12.5Ω		111-0010		
L3	RF Coil	13.2Ω		112-0008		
L4	Osc. Coil	.7Ω	2.8Ω	113-0020		
L5	Input IF	41Ω	41Ω	121-0015		
L6	Output IF	47Ω	47Ω	122-0015		
L7	Hash Choke	0Ω		147-0007		
L8	Fil. Choke	0Ω		145-0005		

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FRE-QUENCY	REPLACEMENT DATA			INSTALLATION NOTES
				SYLVANIA PART No.	CORNELL-DUBILIER PART No.	RADIART PART No.	
M1	Interrupter	6.3	115v	511-0001	5301	5301	

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			SYLVANIA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	SFE	14A	191-0002	562-0007	307014	157014	SFE14	HDI

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					SYLVANIA PART No.		
M3	Bayonet	6-8	.25	Blue	611-0044		Type #44
M4	Bayonet	6-8	.25	Blue	611-0044		Type #44

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M5	Tuner Unit	313-0024	
M6	Spark Plate	167-0008	
A5	Dual Trimmer	173-0003	Osc. Adj. } Includes Fixed Trimmers
A6			RF Adj. }
A7	Trimmer	172-0026	Ant. Adj.
	Dial	722-0018	
	Pointer	791-0019	

PUSH BUTTON ADJUSTMENT

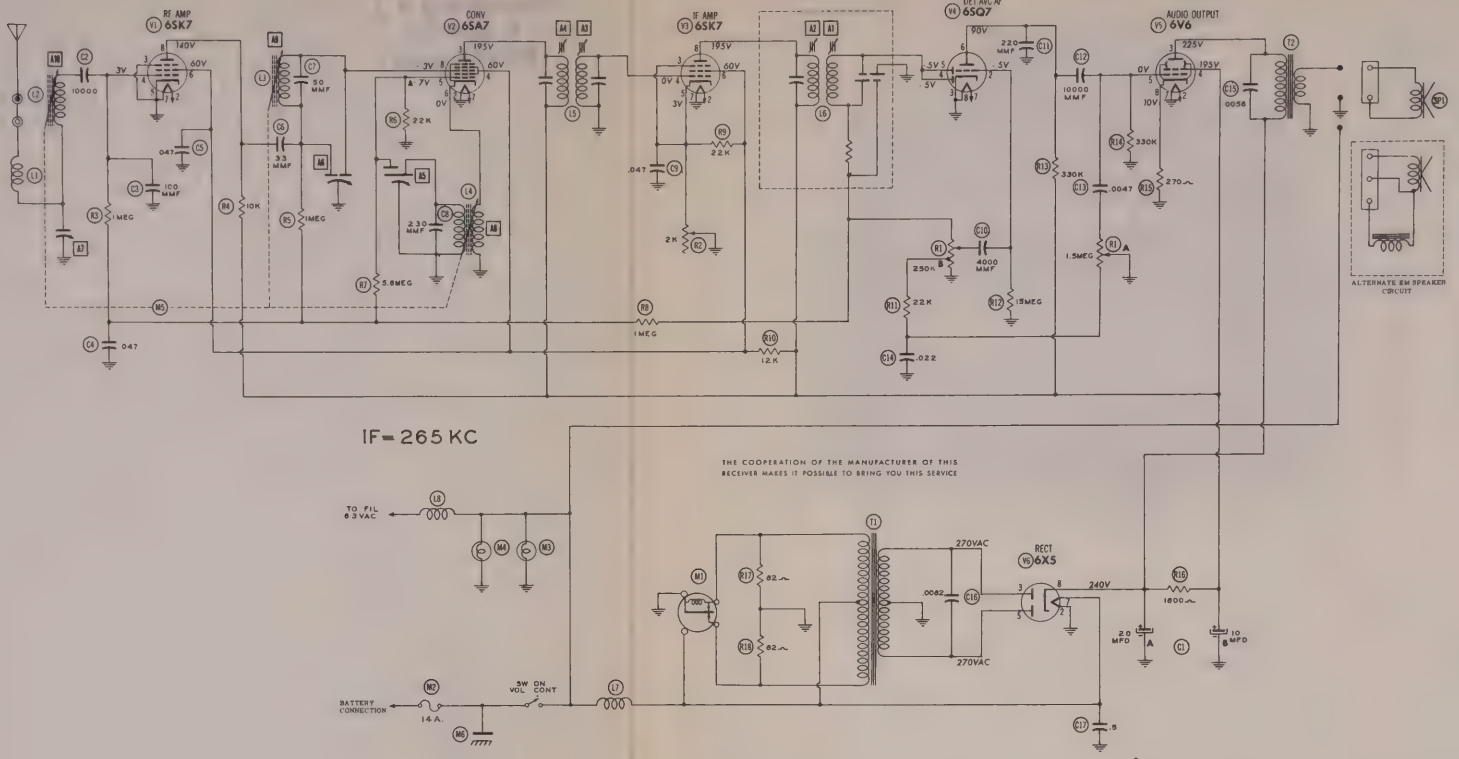
Since the push buttons are mechanical any button may be adjusted to any station within the range of the receiver.

To set, loosen the push button by turning with the fingers in a counter-clockwise direction approximately one turn.

Carefully tune in the desired station manually, then push the push button to its extreme bottom position and release.

Complete the operation by tightening the push button with the fingers.

Repeat this procedure with each push button.



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SK7GT	0Ω	.4Ω	0Ω	2Meg	0Ω	†13KΩ	0Ω	†12KΩ
V 2	6SA7GT	0Ω	0Ω	†1.8Ω	†13KΩ	22KΩ	.7Ω	.1Ω	2Meg
V 3	6SK7GT	0Ω	.4Ω	350Ω	47Ω	350Ω	†13KΩ	0Ω	†1.8KΩ
V 4	6SQ7GT	0Ω	1.5Meg	0Ω	280KΩ	250KΩ	†330KΩ	.4Ω	0Ω
V 5	6V6GT	0Ω	.4Ω	†550Ω	†1.8KΩ	330KΩ	INF	0Ω	270Ω
V 6	6X5GT	0Ω	0Ω	300Ω	INF	315Ω	INF	.4Ω	40KΩ

▲ TAKEN WITH VACUUM TUBE VOLTMETER
† MEASURED FROM PIN 8 OF V6

1 - DC Voltage measurements are at 20,000 ohms per volt, AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage me measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W Sams & Co., Inc. 1952

KNIGHT
MODEL 93-431

KNIGHT
MODEL 93-431

TRADE NAME	Knight Model 96-431
SUPPLIER	Allied Radio Corp., 833 W. Jackson Blvd., Chicago 7, Ill .
TYPE SET	AC Operated Phono Amplifier With 3 Speed Manual Record Player
TUBES (Three)	Types 12AT6 AF Amp., 50C5 Audio Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING .27 Amp. @ 117 Volts AC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		KNIGHT PART No.	STANDARD REPLACEMENT		
V1	AF Amplifier	12AT6	12AT6	7BT	
V2	Audio Output	50C5	50C5	7CV	
V3	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	KNIGHT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	40	150		PRS150/40-40		EDL4415		TVA-2445	Filter
B	40	150							Filter
C2	.006	600		P688-006	D6-602	PTE6D6	GP2-333-602	6TM-D6	Audio Coupling
C3	.006	600		P688-006	D6-602	PTE6D6	GP2-333-602	6TM-D6	Tone Comp.
C4A	.01								Audio Coupling
B	250				♦PC-80			♦101C2	AF Amp. Plate Bypass
C									Audio Output Grid
C5	.01	100		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Output Plate
C6	.1	400		P488-1		PTE4P1		4TM-P1	Line Filter

♦ Items C4A, C4B, C4C, R6, R7, are combined in one unit. When replacing items separately, C4B and C4C should total 250MMF.

CONTROLS

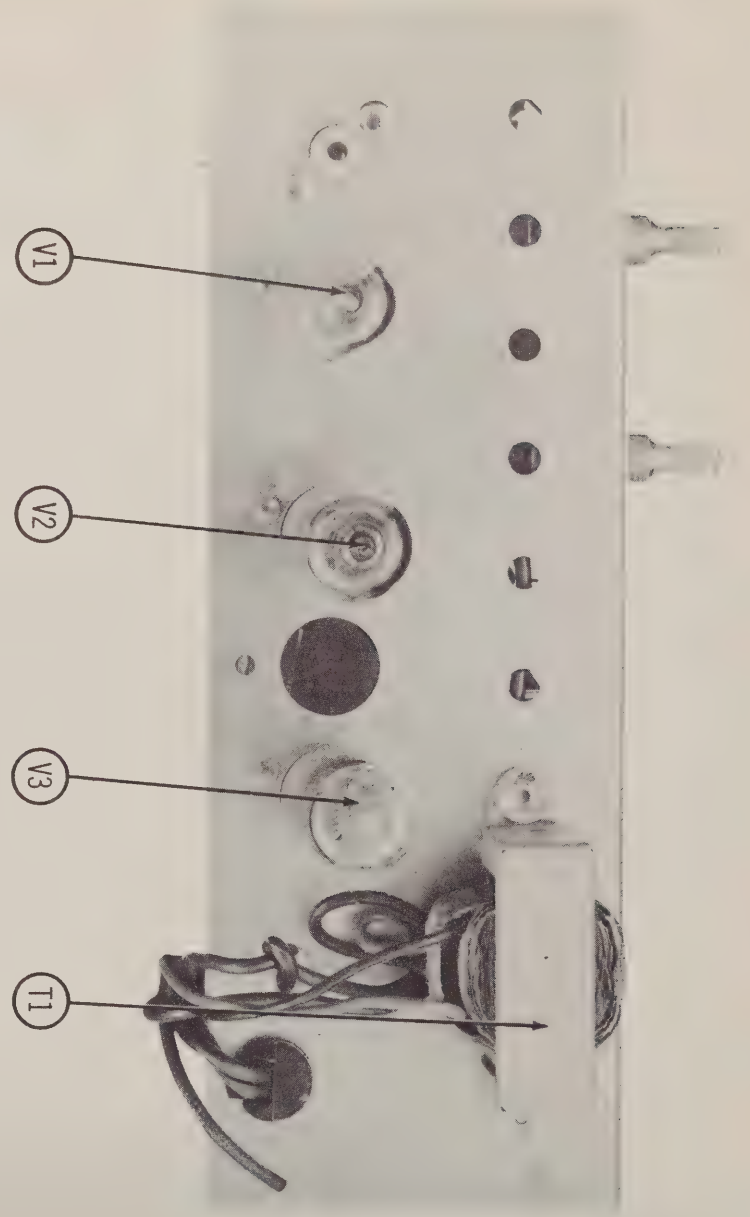
ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESIST-ANCE	WATTS	KNIGHT PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	500KΩ	½		Q13-133	AM-60-Z	BSK-60-S	Tone Control
B	Shaft			Not Req.	KSS-3	Not Req.	Attach to R1A per instructions.
C	Switch			76-1	SWB	Not Req.	Attach to R1A per instructions.
R2A	500KΩ	½		Q13-133	AM-60-Z	BSK-60-S	Volume Control
B	Shaft			Not Req.	KSS-3	Not Req.	Attach to R2A per instructions.
C	Switch			76-1	SWB	Not Req.	Attach to R2A per instructions.

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	KNIGHT PART No.	IRC PART No.	
R3	1Meg	½		BTS-1Meg	Phono Shunt
R4	1Meg	½		BTS-1Meg	Tone Compensation
R5	4.7Meg	½		BTS-470K	AF Amp. Grid
R6	500KΩ	½			AF Amp. Plate - See Note ♦
R7	500KΩ	½			Output Grid - See Note ♦
R8	150Ω	½		BTS-150	Output Cathode
R9	2200Ω	½		BTS-2200	Filter
R10	15Ω	½			Rectifier Ballast
R11	120Ω	5		1 3/4A-125	Series Filament - Wire Wound

Note ♦ Items, R6, R7, C4A, C4B, C4C are combined in one unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		KNIGHT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	2.2KΩ	3.5Ω	185Ω	.6Ω		A-3876	A-2928	R0-2	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	KNIGHT PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	P. M.	3.5Ω		ST-105 Mod P5-X	5A1	
	CONE DIA.	V. C. DIA.				
SP1B	5"	9/16"				

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA							REMARKS
	KNIGHT PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1		LQD-1J	"Q" Q-33			96	0-1 or S-1 & 0-3 or S-3	* Complete Tone Arm and cartridge assembly
		*7D		†901D		†2600		† Tone Arm

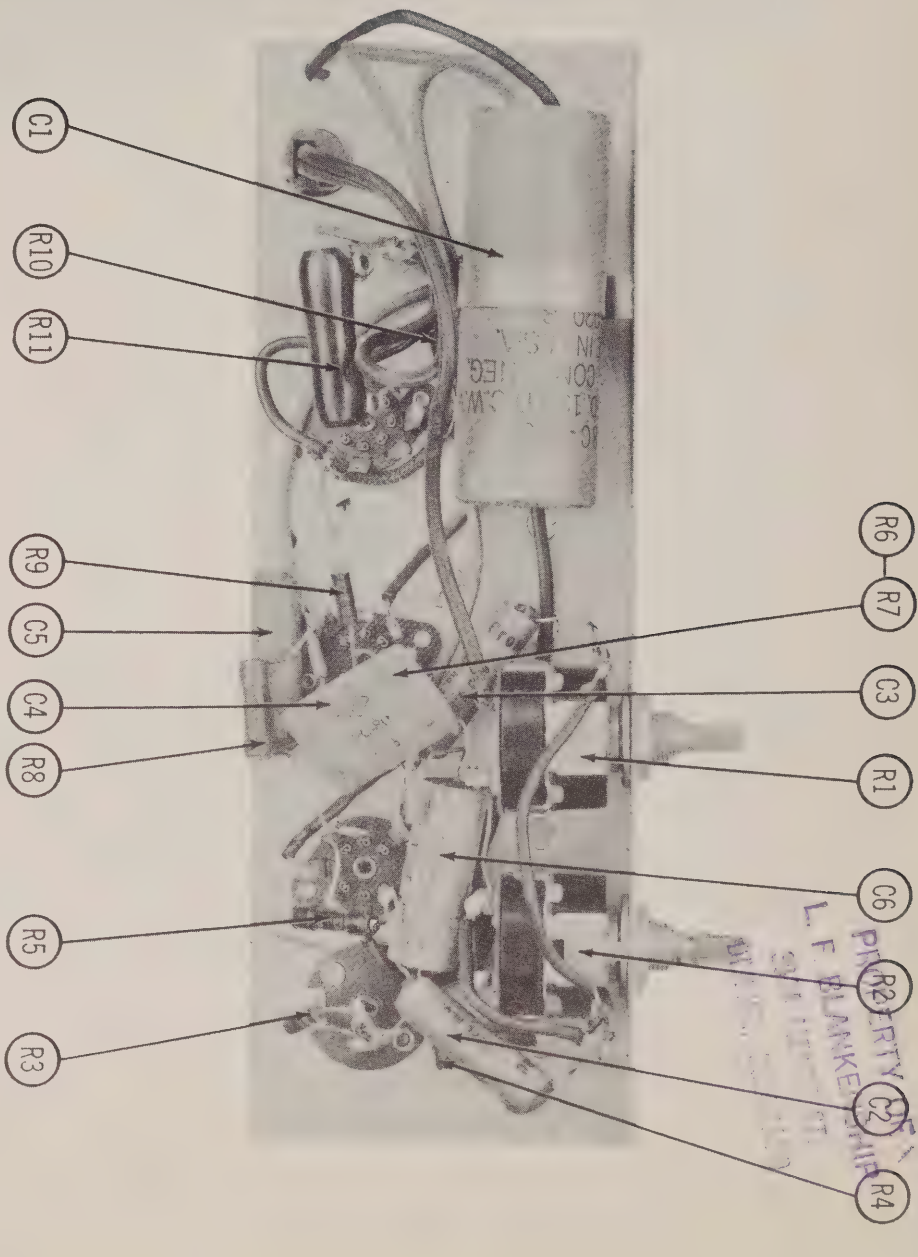
ASTATIC, AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

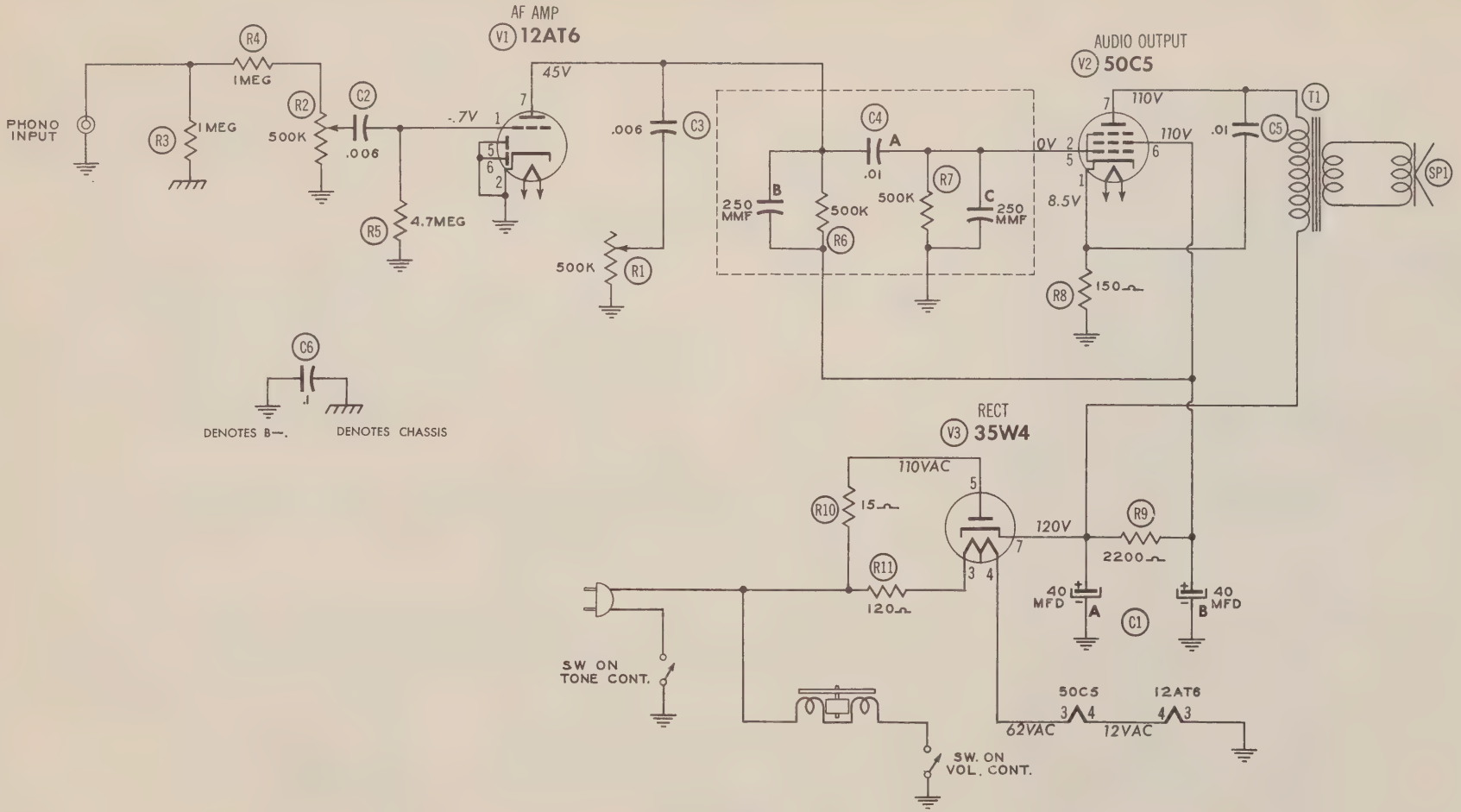
ITEM No.	REPLACEMENT DATA			REMARKS
	KNIGHT PART No.	WALCO PART No.	JENSEN PART No.	
M2		W-2A or W-2S & W-2MGA or W-2MGS	A-80 or A-81 & A-80LP or A-81LP	

CHASSIS—BOTTOM VIEW



PROPERTY OF L. F. BLANKENSHIP

KNIGHT MODEL 96-431



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12AT6	4.7Meg	0Ω	0Ω	12Ω	0Ω	0Ω	†500KΩ
V 2	50C5	150Ω	500KΩ	62Ω	12Ω	500KΩ	†2.2KΩ	†185Ω
V 3	35W4	INF	INF	97Ω	62Ω	232Ω	80Ω	60Ω

† MEASURED FROM PIN 7 OF V3.

THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1952

167-12

1 - DC Voltage measurements are at 20,000 ohms per volt, AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Proper output load connected.

PHOTOFACT* Folder

MOTOROLA MODELS 17K10E, 17T5E, F, 17T6G (Ch. TS-314A, B, TS-315A, B)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST
DENVER, COLORADO

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

MODEL 17T5E

MOTOROLA MODELS
17K10E, 17T5E, F, 17T6G (Ch. TS-314A, B, TS-315A, B)

HOWARD W. SAMS & CO., INC. • Indianapolis, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

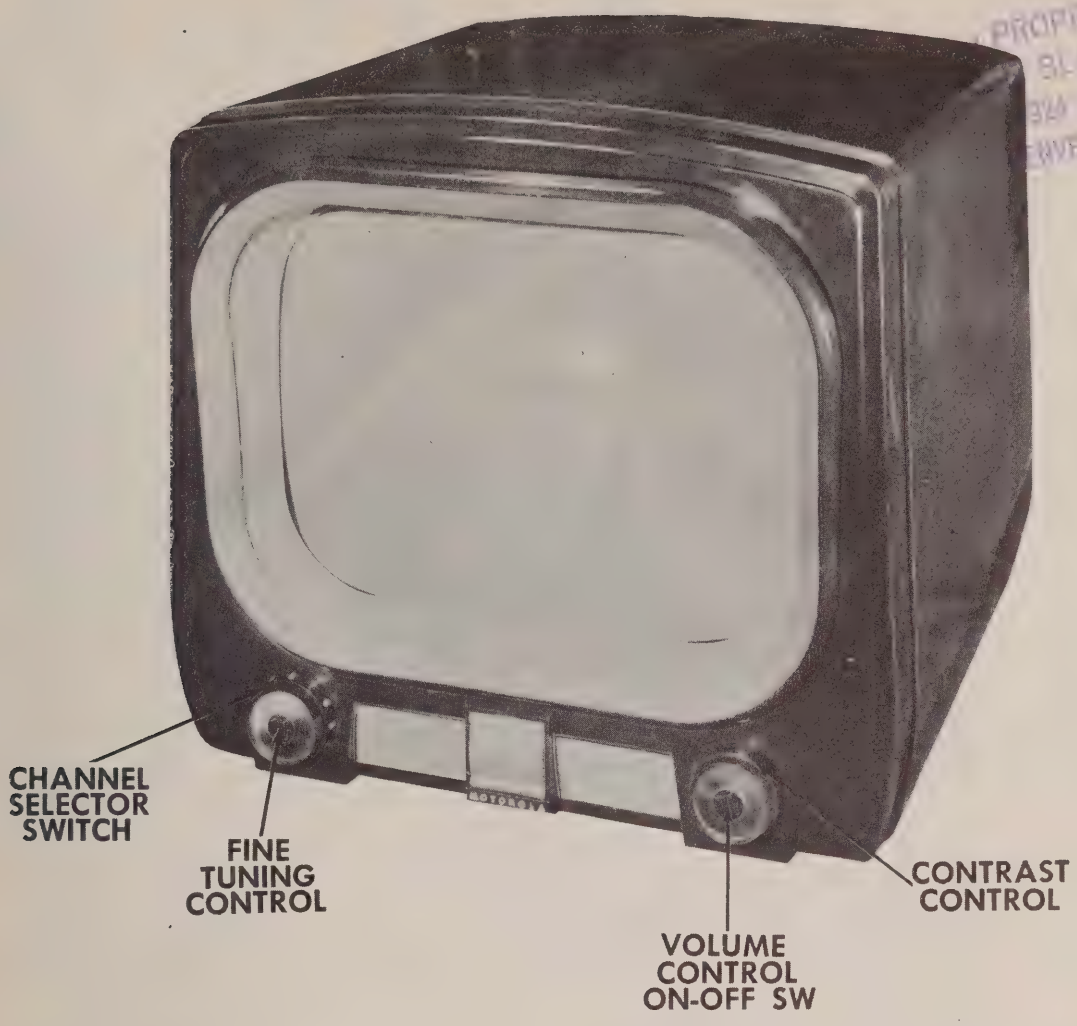
DATE 5-52 SET 167 FOLDER 13

PHOTOFACT* Folder

*TRADE MARK

MOTOROLA MODELS 17K10E, 17T5E, F, 17T6G (Ch. TS-314A, B, TS-315A, B)

PROPERTY OF
BLANKENSHIP
326 MEADE ST.
DENVER, COLORADO



MOTOROLA MODELS
17K10E, 17T5E, F, 17T6G (Ch. TS-314A, B, TS-315A, B)

Motorola 17T5E

TRADE NAME	Motorola Models 17K10E, 17T5E (Ch. TS-314A,B), 17T5F (Ch. TS-315A, B), 17T6G (Ch. TS-314A, B)
MANUFACTURER	Motorola Inc., 4545 Augusta Blvd., Chicago, Ill.
TYPE SET	Television Receiver
TUBES	Seventeen

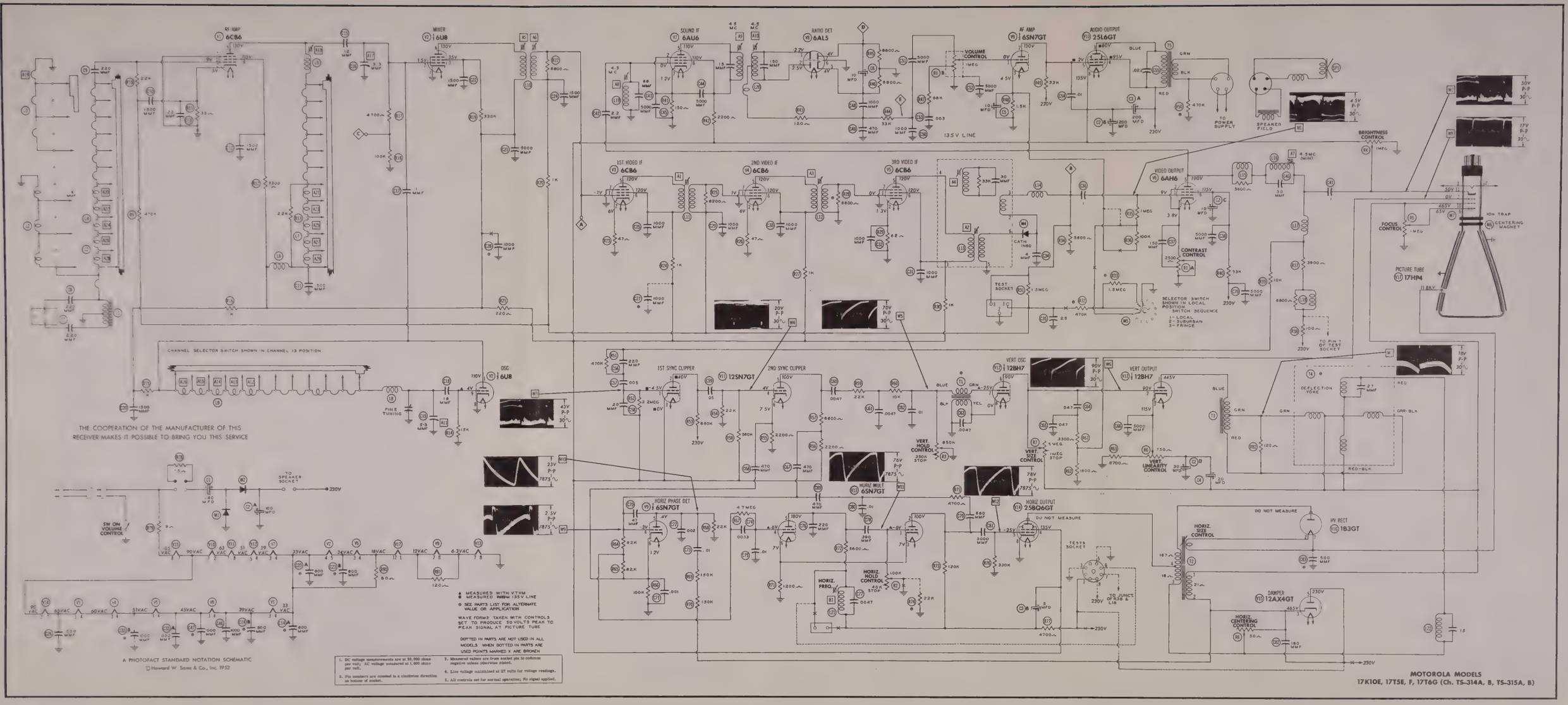
POWER SUPPLY 110-120 Volts AC - 60 cycles RATING 1.2 Amp. @ 117 Volts AC
TUNING RANGE—Channels 2 thru 13

INDEX

Alignment Instructions 6, 7
Disassembly Instructions 11
Horizontal Sweep Circuit Adjustments 11
Parts List and Descriptions 12, 13, 14
Photographs
Cabinet - Rear View 11
Capacitor & Alignment Identification 4, 9
Photos (Cont.)
Chassis - Top View 3
RF Tuner 10
Resistor & Inductor Identification 15, 16
Resistance Measurements 8
Schematic 2
Tube Placement Charts 5

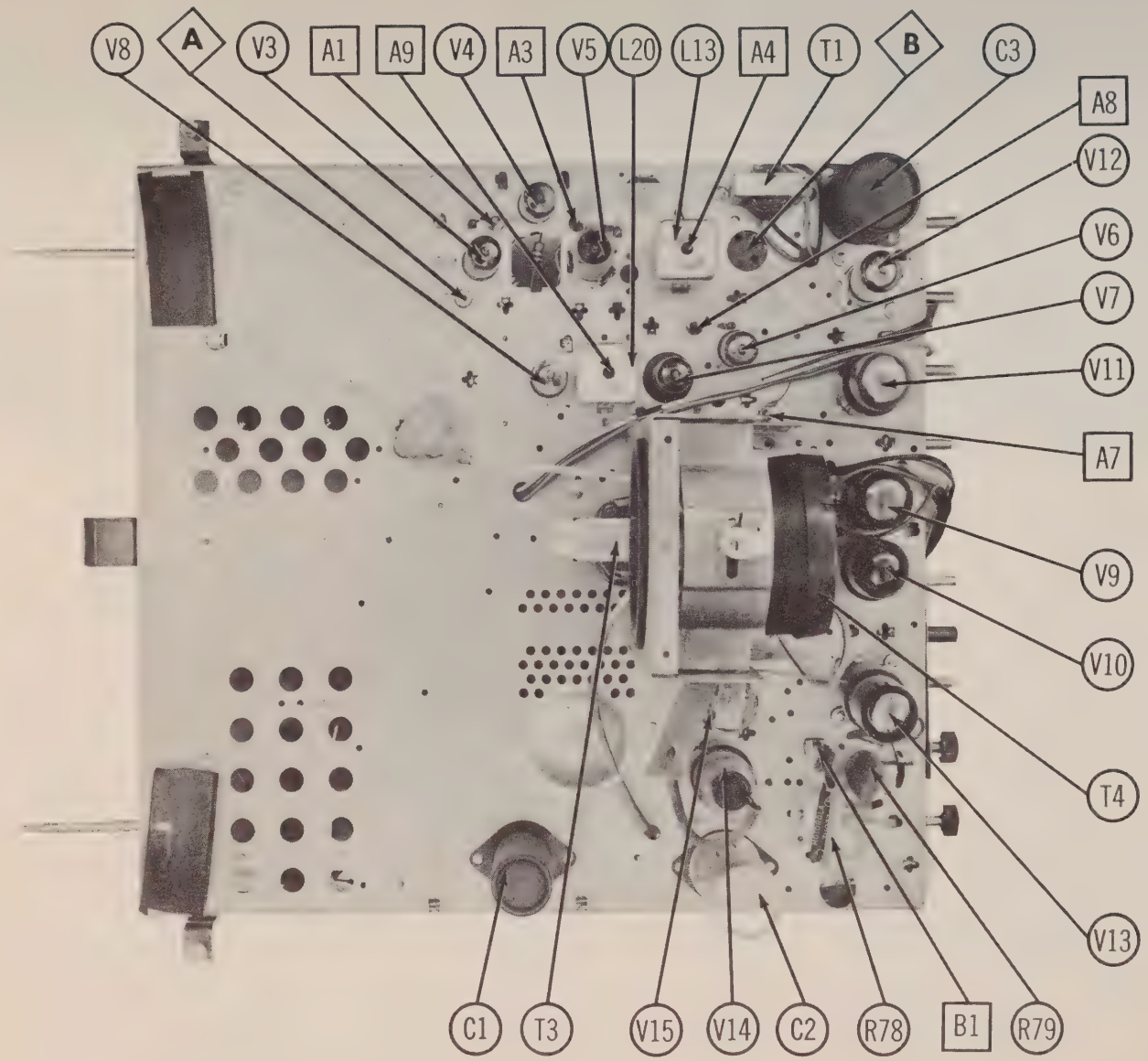
HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America


RF AMP 6CB6
MIXER 6U8
SOUND IF 6AU6
RATIO DET 6AL5
AF AMP 6SN7GT
AUDIO OUTPUT 25L6GT
VOLUME CONTROL
135V LINE
1ST VIDEO IF 6CB6
2ND VIDEO IF 6CB6
3RD VIDEO IF 6CB6
VIDEO OUTPUT 6AH6
CONTRAST CONTROL
SELECTOR SWITCH SHOWN IN LOCAL POSITION
SWITCH SEQUENCE
1- LOCAL
2- SUBURBAN
3- FRINGE
BRIGHTNESS CONTROL
FOCUS CONTROL
ION TRAP
CENTERING MAGNET
PICTURE TUBE 17HP4
11 KV
TO PIN 7 OF TEST SOCKET
SPEAKER FIELD
TO POWER SUPPLY
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
OSC 6U8
FINE TUNING
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
1ST SYNC CLIPPER
2ND SYNC CLIPPER 12SN7GT
VERT OSC 12BH7
VERT OUTPUT 12BH7
VERT. HOLD CONTROL
VERT. SIZE CONTROL
VERT. LINEARITY CONTROL
DEFLECTION YOKE
HORIZ PHASE DET 6SN7GT
HORIZ MULT 6SN7GT
HORIZ. PREQ.
HORIZ. HOLD CONTROL
HORIZ OUTPUT 25BQ6GT
DO NOT MEASURE
HV RECT 1B3GT
HORIZ. SIZE CONTROL
DAMPER 12AX4GT
HORIZ. CENTERING CONTROL
TEST SOCKET
TO JUNCT. OF R38 & L18
TO SPEAKER SOCKET
SW. ON VOLUME CONTROL
105 VAC
90 VAC
63 VAC
51 VAC
39 VAC
23 VAC
24 VAC
18 VAC
12 VAC
6.3 VAC
62 VAC
60 VAC
57 VAC
45 VAC
39 VAC
33 VAC
230V
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1952
▲ MEASURED WITH VTVM
■ MEASURED FROM 135V LINE
⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
DOTTED IN PARTS ARE NOT USED IN ALL MODELS WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN
1. DC voltage measurements are at 20,000 ohms per volt, AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; No signal applied.

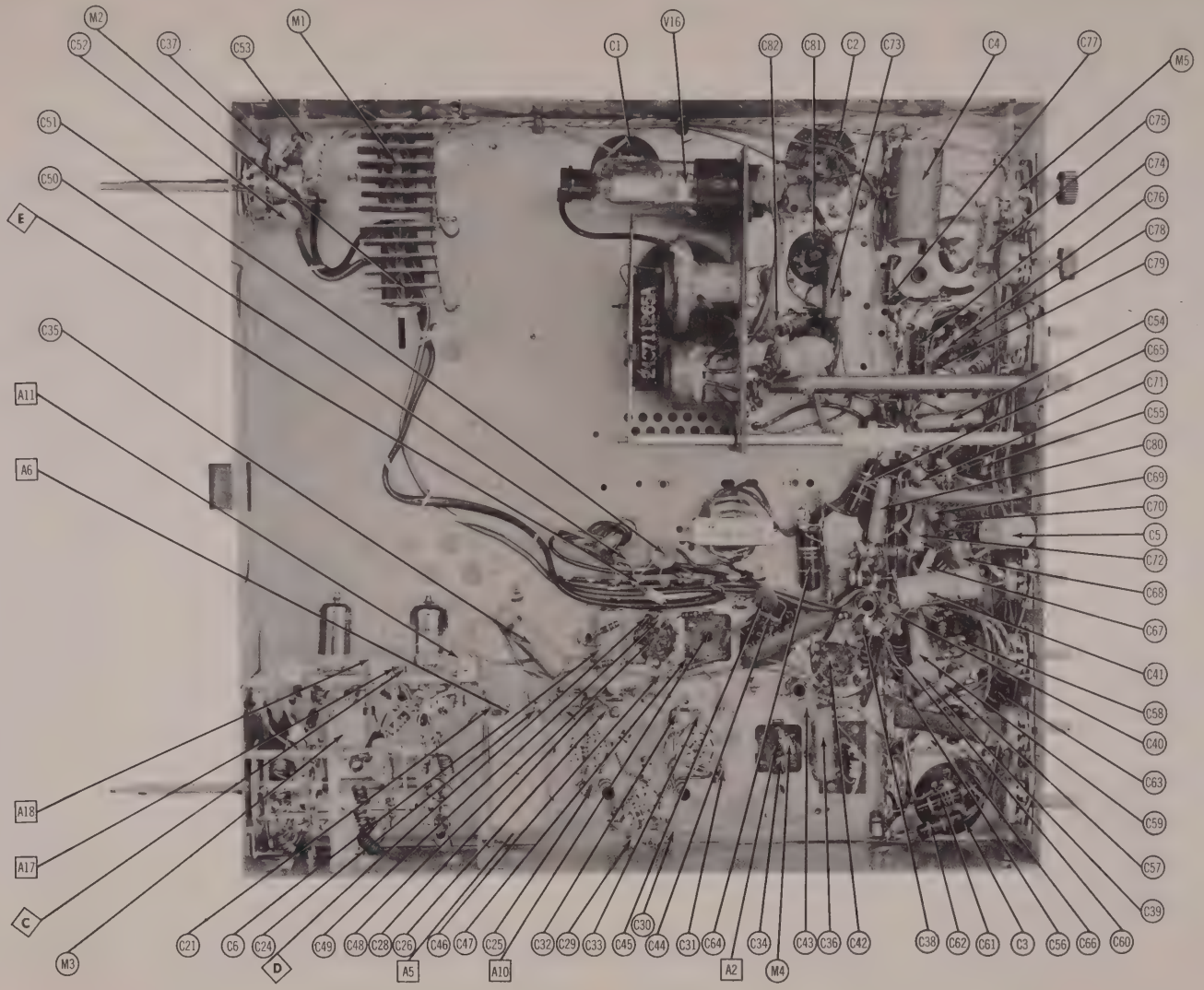
MOTOROLA MODELS
17K10E, 17T5E, F, 17T6G (Ch. TS-314A, B, TS-315A, B)

MOTOROLA MODELS
17K10E, 17T5E, F, 17T6G (Ch. TS-314A, B, TS-315A, B)



CHASSIS TOP VIEW

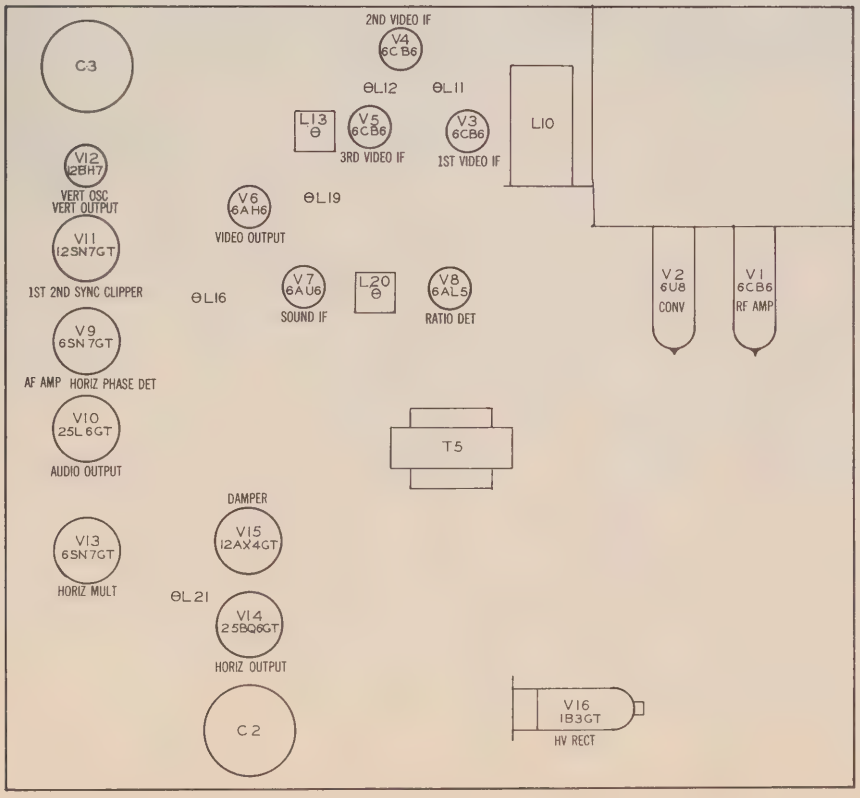
PROPERTY OF
L. F. BLA... SHIP
3921 ME...
DENVER, C...



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

PROPERTY OF
BLANKENSHIP

TOP VIEW



BOTTOM VIEW

TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use an isolation transformer to protect the test equipment.
If the set is to be aligned with the picture tube removed, short pins 1 & 12 of the picture tube socket to complete the filament string.
The horizontal output tube may be removed to eliminate spurious interference and the high voltage , if an 80Ω, 10 watt resistor is connected between pins 2 and 7 of the tube socket. A bad tube (with filament intact), may be used by clipping off all the pins except 2 and 7.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt battery to pin 1 of the test socket, connect the positive lead to chassis.
Switch to a channel which causes no interference. To check for interference turn the fine tuning control, if the response curve changes switch to another channel.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	1000MMF	High side to point (A) Low side to chassis.	24MC (10MC Swp)	24.75MC	See note above.	Vert. amp. thru 47KΩ to point (B) Low side to chassis	A1, A2	Adjust A1 to place 26.6MC at 50% on high frequency slope of response curve. Adjust A2 to provide a flat-topped symmetrical response similar to Fig. 1.
2.	"	"	"	"	"	"	A3	Adjust to place 22.9MC at 50% on low frequency slope of response curve. If necessary retouch A2 for flat top symmetrical response.
3.	"	"	"	"	"	"	A4	Adjust for MINIMUM marker indication at the 21.9MC point on response curve.
4.	"	High side to point (C) Low side to chassis.	"	"	"	"	A5, A6	Connect a short across R17. Adjust for response curve similar to fig. 2. Make sure that the slugs are entering the coils from the outside.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	1000MMF	High side to pin 1, (grid) of 6AH6, V6 . Low side to chassis.	4.5MC (unmod.)	Any Channel not used locally	DC probe thru detector (fig. 3) to pin 11 of picture tube.	A7	Adjust for MINIMUM deflection

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	1000MMF	High side to pin 1, (grid) of 6AH6, (V6). Low side to chassis.	4.5MC (unmod.)	Any channel not used locally.	DC probe to point (D) Common to chassis.	A8, A9	Adjust for max. deflection.
7.		"	"	"	DC probe to point (E) Common to chassis.	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	1000MMF	High side to pin 1, (grid) of 6AH6, (V6). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	See note above VID. IF align.	Vert. Amp. to point (D) Low side to chassis.	A8, A9	Disconnect stabilizor capacitor C6. Adjust for maximum amplitude & symmetry as per fig. 4.
7.	"	"	"	"	"	Vert. amp. to point (A) Low side to chassis.	A10	Reconnect capacitor C6. Adjust A10 so 4.5MC occurs at center of crossover lines as per fig. 5. SLIGHTLY retouch A9 for maximum amplitude and straightness of crossover lines.

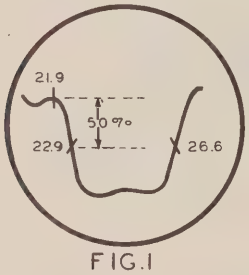


FIG.1

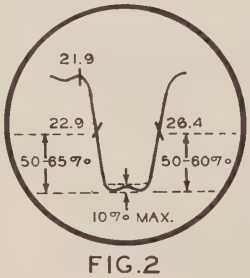


FIG.2

FIG. 3

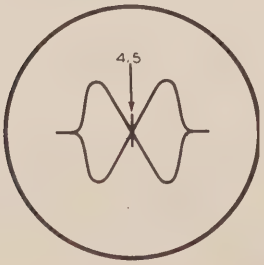


FIG. 4

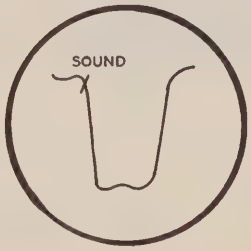


FIG.5

ALIGNMENT INSTRUCTIONS (CONT.)

OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	195MC (10MC Swp)	197.75MC	10	Vert. Amp. to point (B) Low side to chassis.	A11	Adjust to place sound marker slightly higher in frequency than the 21.9MC trap "notch" as shown in fig. 5. This is necessary to compensate for frequency shift caused by replacing the bottom cover.
9.	"	"	177MC (10MC Swp)	179.57MC	7	"		Check to see if the sound marker can be placed just above the notch with the fine tuning control within 30% of mid-position. If not expand or compress the turns of L8 on Channel 13. If L8 is changed A11 will probably require readjustment on Channel 10.
			183MC (10MC Swp)	185.75MC	8			
			189MC (10MC Swp)	191.75MC	9			
			195MC (10MC Swp)	197.75MC	10			
			201MC (10MC Swp)	203.75MC	11			
			207MC (10MC Swp)	209.75MC	12			
			213MC (10MC Swp)	215.75MC	13			
10.	"	"	85MC (10MC Swp)	87.75MC	6	"	A12	Turn the fine tuning control 30° either way from mid-position. Expand or compress coil turns to place, sound marker slightly higher than trap notch
			79MC (10MC Swp)	81.75MC	5		A13	
			69MC (10MC Swp)	71.75MC	4		A14	
			63MC (10MC Swp)	65.75MC	3		A15	
			57MC (10MC Swp)	59.75MC	2		A16	

ANTENNA & RF ALIGNMENT

Connect a short across all of the oscillator coils (from position 2 to position 13 on the switch wafer).
Remove the bias battery and short the AGC line to chassis
Notice that on the low channels the antenna coils are tuned the video carrier frequencies and the RF coils are tuned to the sound carrier frequencies.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	177MC (10MC Swp)	175.25MC 179.75MC	7	Vert. Amp. to point (B) Low side to chassis.	A17	Adjust for response curve similar to fig. 6
12.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"	A18	Adjust for response curve within the limits of fig. 6. Recheck channel 13. If necessary repeat adjustment of A17 &A18 until no further improvement can be made. Check channels 8 thru 12. The peak of the curves may be adjusted by adjusting A19 by altering its position or changing the amount of the coil extending thru the shield partition.
13.	"	"	85MC (10MC Swp)	83.25MC 87.75MC	6	"	A20 A21	Adjust for response curve similar to Fig. 7. Notice that the antenna coils are peaked at the video carrier freq. and the RF coils are peaked at the sound carrier freq.
			79MC (10MC Swp)	77.25MC 81.75MC	5		A22 A23	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A24 A25	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A26 A27	
			57MC (10MC Swp)	55.25 MC 59.75MC	2		A28 A29	

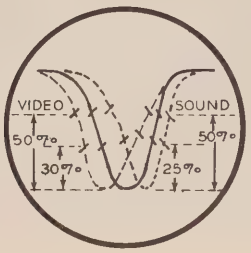


FIG.6

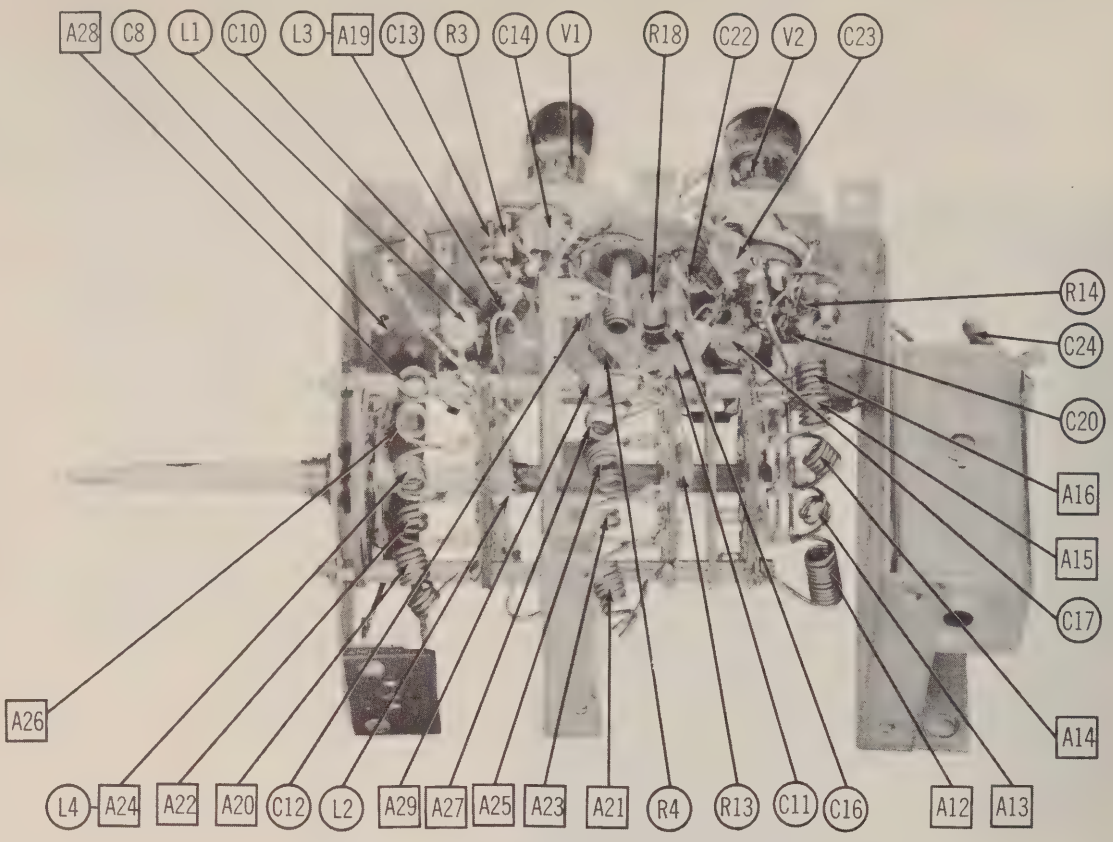
FIG.7

RESISTANCE MEASUREMENTS

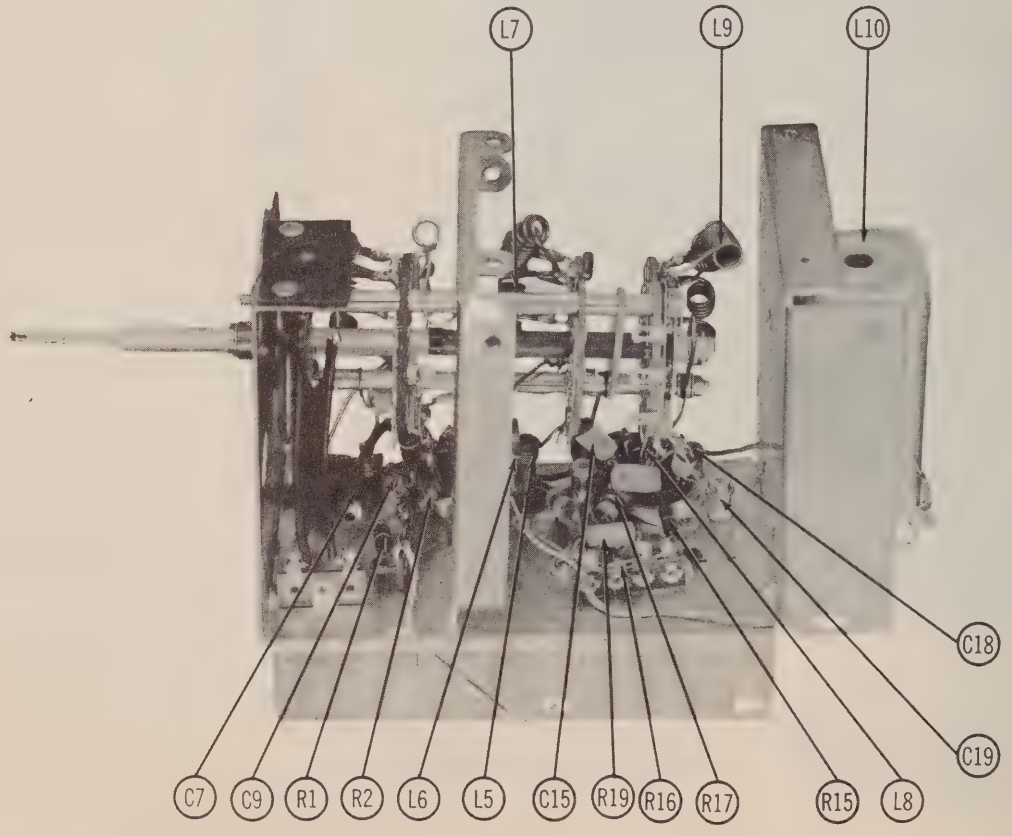
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	2Meg	33Ω	11Ω	8.5Ω	■220Ω	■3.5KΩ	0Ω		
V 2	6U8	■2.2KΩ	100KΩ	■330KΩ	8.5Ω	7.6Ω	■220Ω	0Ω	0Ω	15KΩ
V 3	6CB6	1.5Meg	47Ω	20Ω	18Ω	■1KΩ	■1KΩ	0Ω		
V 4	6CB6	1.5Meg	47Ω	18Ω	16Ω	■1KΩ	■1KΩ	0Ω		
V 5	6CB6	.2Ω	82Ω	16Ω	14Ω	■1KΩ	■1KΩ	0Ω		
V 6	6AH6	1.1Meg	310Ω	7.6Ω	4.8Ω	†4KΩ	†33KΩ	310Ω		
V 7	6AU6	1.2Ω	150Ω	11Ω	8.5Ω	■2.2KΩ	■2.2KΩ	150Ω		
V 8	6AL5	INF	INF	14Ω	11Ω	6.8KΩ	0Ω	6.8KΩ		
V 9	6SN7GT	50KΩ	†33KΩ	1.5KΩ	265KΩ	22KΩ	100KΩ	3.3Ω	1.8Ω	
V 10	25L6GT	INF	20Ω	†295Ω	†85Ω	†33KΩ	180KΩ	23Ω	40KΩ	
V 11	12SN7GT	■2.2Meg	†680KΩ	■0Ω	18KΩ	■9KΩ	2.2KΩ	20Ω	16Ω	
V 12	12BH7	#700Ω	#2.8Meg	8.5KΩ	11Ω	16Ω	#2.8Meg	500KΩ	52Ω	14Ω
V 13	6SN7GT	70KΩ	†120KΩ	1.2KΩ	4.9Meg	†9.4KΩ	1.2KΩ	1.8Ω	0Ω	
V 14	25BQ6GT	INF	23Ω	120KΩ	■0Ω	330KΩ	22KΩ	20Ω	0Ω	TOP CAP #20Ω
V 15	12AX4GT	INF	#20Ω	330KΩ	INF	†85Ω	#300KΩ	23Ω	25Ω	
V 16	1B3GT	PINS 1 THROUGH 8 HAVE INF RESISTANCE								TOP CAP #200Ω
V 17	17HP4F	3.3Ω	1.8KΩ	PIN 10 #16Ω	PIN 11 410KΩ	PIN 12 4.8Ω	PIN 6 110KΩ			

ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
M5 IN LOCAL POSITION
† MEASURED FROM OUTPUT OF M2
■ MEASURED FROM 135VDC LINE
MEASURED FROM PIN 3 OF V15

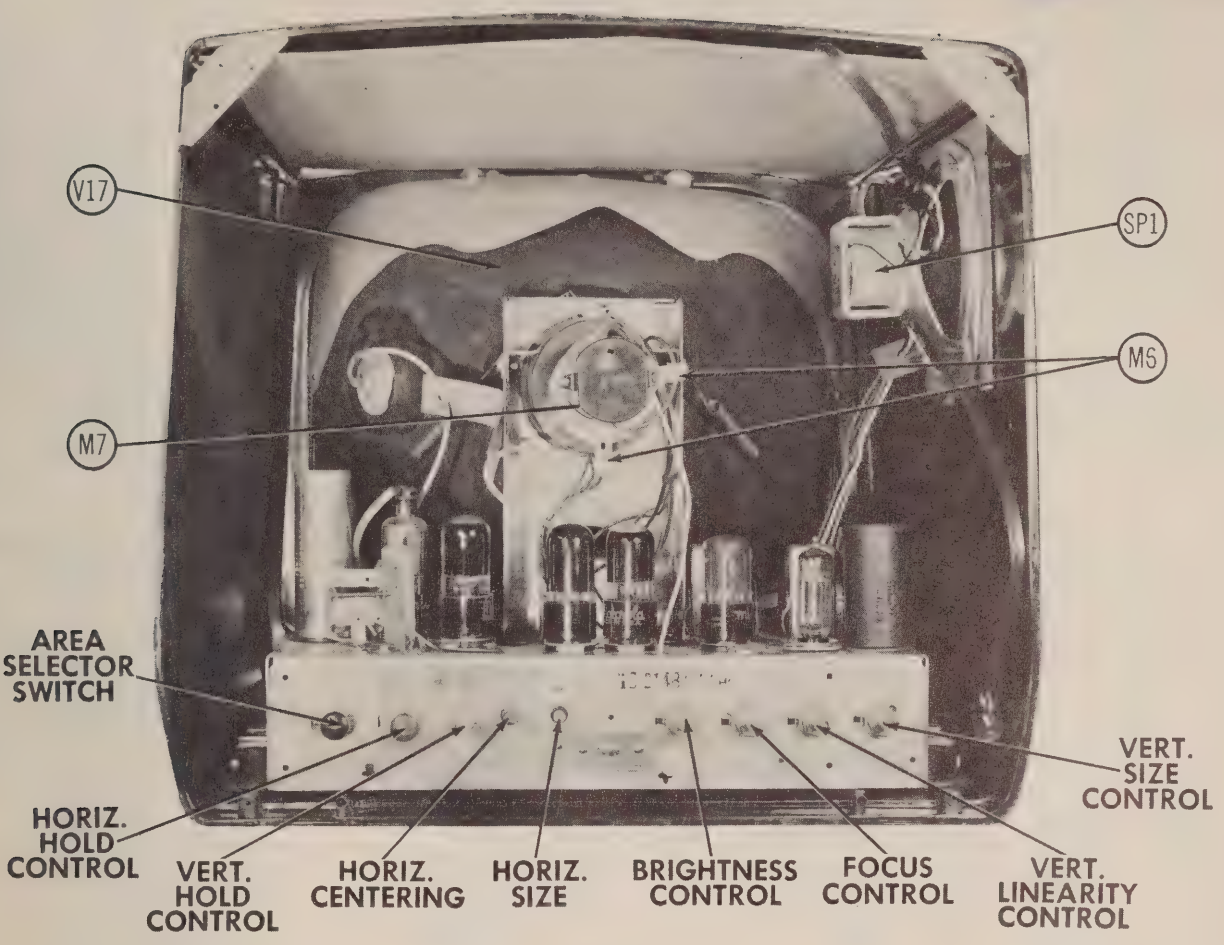


RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW

PROPERTY OF
L. F. BLANK
3924
DE



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to the mid-position of its range.

Adjust the horizontal frequency slug, (B1), to the center of the range over which the picture sychronizes horizontally.

Adjust horizontal size adjustment until the picture is slightly wider than necessary to fill the mask horizontally.

DISASSEMBLY INSTRUCTIONS

1. Remove 4 push on type control knobs from front panel.
2. Disconnect built-in antenna.
3. Remove 2 wood screw holding antenna terminal strip.
4. Remove 5 screws holding rear cover. Remove cover.
5. Disconnect speaker.
6. Remove speaker mounting nuts. Remove speaker.
7. Remove 4 chassis bolts. Remove chassis.

NOTE. FOR PICTURE TUBE REMOVAL, IT IS NECESSARY TO REMOVE CHASSIS AS OUTLINED ABOVE.

PROPERTY OF
L. F. BLANKENSHIP

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No	USE	REPLACEMENT DATA: MOTOROLA PART No	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6CB6	6CB6	7CM	
V2	Converter	6U8	6U8	9-AK	
V3	1st. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Output	6AH6	6AH6	7BK	
V7	Sound IF Amp.	6AU6	6AU6	7BK	
V8	Ratio Detector	6AL5	6AL5	6BT	
V9	AF Amplifier - Horiz. Phase Det.	6SN7GT	6SN7GT	8BD	
V10	Audio Output	25L6GT	25L6GT	7AC	
V11	1st. & 2nd. Sync. Clippers	12SN7GT	12SN7GT	8AB	
V12	Vert. Oscillator - Vert. Output	12BH7	12BH7	9A	
V13	Horiz. Multi.	6SN7GT	6SN7GT	8BD	
V14	Horiz. Output	25BQ6GT	25BQ6GT	6AM	
V15	Damper	12AX4GT	12AX4GT	4CG	
V16	HV Rectifier	1B3GT	1B3GT	3C	

CATHODE-RAY TUBE

ITEM No	REPLACEMENT DATA: MOTOROLA PART No	REPLACEMENT DATA: SYLVANIA PART No	RMA BASE TYPE	NOTES
V17A	17HP4	17HP4	12C	
B	17TP4	17TP4	12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MOTOROLA PART No	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1	140	150	23B484097	F3A120		UPE15015		TVL-1428	Voltage Doubler
C2A	100	300	23B702451	E4D491				TVL-4581	▲ Fil.
B	200	150							▲ Decoupling
C	10	300							■ Video Output Screen
D	30	150							Vert. Output Cathode
C3A	200	150	23B710941	E4B257		UPE10105		TVL-1431	▲ Filter
B	15	150				BR415		TVA-1402	▲ Decoupling
C4	90	450	23K710667	PR8450/20		BR2045A		TVA-1709	Decoupling
C5	10	50	23A90205	PR550/10		BR105		TVA-1304	AF Amp. Cathode Bypass
C6	10	50	23A90205	PR550/10		BR105		TVA-1304	Stabilizing Cap.
C7	220		21K77375	S1220	D6-221		GP2K-221	5GA-T22	RF Coupling
C8	220		21K77375	S1220	D6-221		GP2K-221	5GA-T22	RF Coupling
C9	220		21K40941	S1220	D6-221		GP2K-221	5GA-T22	RF Coupling
C10	1500		21A701029	BPD-0015	DD-152	TM5D15	801-0015	5HK-D15	AGC Filter
C11	1500		21A701029	BPD-0015	DD-152	TM5D15	801-0015	5HK-D15	RF Amp. Plate Dec.
C12	1500		21A701029	BPD-0015	DD-152	TM5D15	801-0015	5HK-D15	RF Amp. Screen Bypass
C13	22		21R400942	S122	D6-220		GP1K-220	5GA-Q22	RF Amp. Cathode
C14A	800			BPD-2X001	DD-2-102	TM5DD1	812-001	5HK-2D1	RF Amp. Fil. Bypass †
B	800								RF Amp. Fil. Bypass †
C15	12		21K114073	SU2	D6-120		GP1K-120		Conv. Fil. Bypass †
C16	5-3		1X710954		829-3				Variable Trimmer
C17	1		21K114071		TCZ-1		NP0K-010		Osc. Coupling
C18	18		21K701246						Osc. Grid Cap.
C19	5-3		1X710954		829-3				Variable Trimmer
C20	1500		21A701029	BPD-0015	DD-152	TM5D15	801-0015	5HK-D15	RF Bypass
C21	5000		21A707089	BPD-005	DD-502	TM5D5	811-005	5HK-D5	Mixer Plate Dec.
C22	1500		21A701029	BPD-0015	DD-152	TM5D15	801-0015	5HK-D15	Mixer Screen Bypass
C23A	800			BPD-2X001	DD-2-102	TM5DD1	812-001	5HK-2D1	Conv. Fil. Bypass †
B	800								Conv. Fil. Bypass †
C24	1500		21A701029	BPD-0015	DD-152	TM5D15	801-0015	5HK-D15	AGC Filter
C25	1000		21K400936	BPD-001	DD-102	TM5D1	801-001	5HK-D1	1st. Video IF Dec.
C26	1000		21K400936	BPD-001	DD-102	TM5D1	801-001	5HK-D1	1st. Video IF Fil.
C27	1000		21K400936	BPD-001	DD-102	TM5D1	801-001	5HK-D1	RF Bypass *
C28	1000		21K400936	BPD-001	DD-102	TM5D1	801-001	5HK-D1	RF Bypass *
C29	1000		21K400936	BPD-001	DD-102	TM5D1	801-001	5HK-D1	AGC Filter
C30	1000		21K400936	BPD-001	DD-102	TM5D1	801-001	5HK-D1	2nd. Video IF Dec.
C31	1000		21K400936	BPD-001	DD-102	TM5D1	801-001	5HK-D1	3rd. Video IF Dec.
C32	1000		21K400936	BPD-001	DD-102	TM5D1	801-001	5HK-D1	3rd. Video IF Cathode
C33A	1000		21K400937	BPD-2X001	DD-2-102	TM5DD1	812-001	5HK-2D1	3rd. Video IF Fil.
B	1000								3rd. Video IF Fil. *
C34	4		21K38951				NP0K-040		Video Det. Filter
C35	.25	100	8R9810		P488-25		PJ2P25		AGC Filter
C36	.1	100	8R9814		P288-1	DF-104	PJ2P1		2TM-P1 Video Coupling
C37	150		21R691948		SI150	D6-151	TM5T15	GP2K-151	5GA-T15 Video Output Cathode
C38	5000		21A470789		BPD-005	DD-502	TM5D5	811-005	5HK-D5 Video Output Screen
C39	5000		21A470789		BPD-005	DD-502	TM5D5	811-005	5HK-D5 RF Bypass
C40	30		21K470329			TCZ-30		NP0K-300	Fixed Trimmer
C41	.1	400	8R9862		P488-1	DF-104	PTE4P1		4TM-P1 Video Coupling
C42	2.2		21A478274			TCZ-2.2		NP0K-2R2	Sound IF Coupling
C43	68		21R400928					N470L-680	Fixed Trimmer
C44	5000		21A470789		BPD-005	DD-502	TM5D5	811-005	5HK-D5 Sound IF Decoupling
C45	5000		21A470789		BPD-005	DD-502	TM5D5	811-005	5HK-D5 Sound IF Decoupling
C46	1000		21K400936		BPD-001	DD-102	TM5D1	801-001	5HK-D1 Ratio Det. Fil. Bypass
C47	1000		21K400936		BPD-001	DD-102	TM5D1	801-001	5HK-D1 Ratio Det. Fil. Bypass *
C48	1000		21K780599		SI1000	D6-102	TM5D1	GP2L-102	5HK-D1 Diode Load Cap.
C49	470		21K400940		SI470	D6-471	TM5T5	GP2K-471	5GA-T47 RF Bypass
C50	1000		21K700599		SI1000	D6-102	TM5D1	GP2L-102	5HK-D1 De-Emphasis
C51	5000		21A470789		BPD-005	DD-502	TM5D5	811-005	5HK-D5 Audio Coupling
C52	5000		21A470789		BPD-005	DD-502	TM5D5	811-005	5HK-D5 Vol. Cont. Isolation
C53	.003	200	8R9820		P6-302	PTE6D3	GP2-333-302	6TM-D3	Tone Comp.
C54	.01	400	8R9859		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1 Audio Output Grid
C55	.022	600	8R490255		P658-022	DF-203	PTE6S2		6TM-S22 Audio Output Plate
C56	220		21K77375		S1220	D6-221	5RST25	GP2K-221	5GA-T22 Sync. Coupling

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C57	.005	600	8R9869	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Sync. Coupling
C58	20		21R400942		TCN-20		N750K-200		Sync. Clipper Grid
C59	05	400	8R9851	P488-05	DF-503	PTE4S5		4TM-S5	Sync. Coupling
C60	.0047	400	8R490222	P688-0047	D6-472	PTE6D47	GP2-333-472	6TM-D47	Vert. Sync. Coupling
C61	.0047	400	8R490222	P688-0047	D6-472	PTE6D47	GP2-333-472	6TM-D47	Vert. Integrator Net.
C62	01	400	8R490226	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Vert. Integrator Net.
C63	.0047	400	8R490222	P688-0047	D6-472	PTE6D47	GP2-333-472	6TM-D47	Fixed Trimmer
C64	.047	400	8R490232	P488-047	DF-503	PTE4S47		4TM-S47	Vert. Discharge
C65	047	400	8R490232	P488-047	DF-503	PTE4S47		4TM-S47	Integrator Net.
C66	5000		21A470789	BPD-005	DD-502	TM5D5	811-005	5HK-D5	Vert. Output Cathode
C67	470	500	21R6673	1469-0005		5RST5		MS-35	Horiz. Sync. Coupling
C68	470	500	21R6673	1469-0005		5RST5		MS-35	Horiz. Sync. Coupling
C69	470	500	21R6673	1469-0005		5RST5		MS-35	Horiz. Feedback
C70	47		21R6602	S147N750	TCN-47		N750K-470	5TCU-Q47	Horiz. Feedback
C71	.001	400	8R9866	P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	Voltage Divider
C72	.002	600	8R9867	P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	Voltage Divider
C73	.001	1000	8R9877	P1068-001		PTE16D1		M3-D1	Horiz. Feedback
C74	.0033	400	8R490220	P688-0033	D6-322	PTE6D3	GP2-333-332	6TM-D3	Horiz. AFC Coupling
C75	01	400	8R9858	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Horiz. AFC Filter
C76	220		21K77375	S1220	D6-221	5RST25	GP2K-221	5GA-T22	Horiz. MV Plate
C77	.0047	600	8R9869	P688-0047	D6-472	PTE6D47	GP2-333-472	6TM-D47	Fixed Trimmer
C78	390	500	21R6664	1469-0004		5RST4		MS-34	Horiz. MV Feedback
C79	680	500	21R2741	1479-0007		2RST7		MS-37	Horiz. Discharge
C80	.01	400	8R9850	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Voltage Divider
C81	5000		21A470789	BPD-005	DD-502	TM5D5	811-005	5HK-D5	Horiz. Sweep Coupling
C82	180	3000	21K701873						Damper Plate
C83	500	20000	21A790833	HV30C	TV3-502	MM-C20T5			HV Filter †

* Not used in all models
† Some models use 1000MMF in this application
‡ Used in chassis TS-315B only

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	REPLACEMENT DATA: CENTRALAB PART No.	INSTALLATION NOTES
				Concentrikit			
R1A	2500Ω	½	18K702864	B1T-1ILX *		SBB-701-B	Contrast Control - Tapped @ 500Ω - Panel
B	1Meg	½		B1J-1J7X *			Volume Control - Tapped @ 300KΩ - Rear
C	Shaft		Not Req.	E1ST *		Not Req.	Attach per instructions in Concentrikit
D	Switch		Not Req.	78-1 *		Not Req.	Attach per instructions in Concentrikit
R2A	100KΩ	½	18A702468	Q1J-128	AG-49-S		Horiz. Hold Control - See Note 1
B	Shaft		Not Req.	Not Req.	RS-3		Attach to R2A per instructions
R3A	850KΩ	½	18K711278	Q1J-137	AG-61-S		Vert. Hold Control - See Note 3
B	Shaft		Not Req.	Not Req.	RS-3		Attach to R3A per instructions
R4A	5Meg	½	18A702441	Q1J-141	AG-85-S		Brightness Control
B	Shaft		Not Req.	Not Req.	RS-2		Attach to R4A per instructions
R5A	1Meg	½	18A711235	Q1J-137	AG-61-S	AN-89	Focus Control
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Attach to R5A per instructions
R6A	750Ω	½	18A702475		AG-8-S		Vert. Linearity Control
B	Shaft		Not Req.		RS-2		Attach to R6A per instructions
R7A	5Meg	½	18A702443	Q1J-141	AG-85-S		Vert. Size Control - See Note 2
B	Shaft		Not Req.	Not Req.	RS-2		Attach to R7A per instructions
R8	50Ω	1	1K711613				Horiz. Centering Control - Wire Wound

* Additional Parts to be used with Concentrikit
Note 1. Connect a 39KΩ Resistor between the right hand terminal of the control & the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down)
Note 2. Connect a 1Meg Resistor between the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down)
Note 3. Connect a 330KΩ Resistor between the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down)

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ±10% UNLESS OTHERWISE NOTED
R9	470KΩ 20%	½	6R6032	BTS-470K	AGC Network
R10	22KΩ	½	6R6397		RF Amp. Grid
R11	33Ω	½	6R6036		RF Amp. Cathode
R12	3300Ω	½	6R6036	BTS-3300	RF Amp. Screen
R13	22KΩ	½	6R6397		RF Coil Shunt
R14	15KΩ	½	6R6119	BTS-15K	Osc. Grid
R15	1000Ω 20%	½	6R6301	BTS-1000	Osc. Plate
R16	1000Ω 20%	½	6R6301	BTS-1000	Osc. Plate Decoupling
R17	4700Ω 20%	½	6R6039	BTS-4700	Mixer Grid
R18	100KΩ	½	6R6075	BTS-100K	Mixer Grid
R19	330KΩ	½	6R6014	BTS-330K	Mixer Screen
R20	1000Ω 20%	½	6R6301	BTS-1000	AGC Network
R21	220Ω 20%	½	6R3033	BTS-220	Decoupling
R22	680Ω	½	6R6428	BTS-6800	1st. Video IF Coil Shunt
R23	47Ω	½	6R2108		1st. Video IF Amp. Cathode
R24	1000Ω 20%	½	6R6301	BTS-1000	1st. Video IF Amp. Decoupling
R25	820Ω	½	6R3004		2nd. Video IF Coil Shunt - See Note 1
R26	47Ω	½	6R2108		2nd. Video IF Amp. Cathode
R27	1000Ω 20%	½	6R6301	BTS-1000	2nd. Video IF Amp. Decoupling
R28	680Ω	½	6R6428		3rd. Video IF Coil Shunt - See Note 1
R29	82Ω	½	6R2035	BTS-82	3rd. Video IF Amp. Cathode
R30	1000Ω 20%	½	6R6301	BTS-1000	3rd. Video IF Amp. Decoupling
R31	1.5Meg	½			AGC Network
R32	470KΩ 20%	½	6R6032		AGC Network - See Note 2
R33	1.5Meg	½			AGC Network - See Note 2
R34	5600Ω	2	6R6117	BTS-5600	Video Det. Load
R35	1Meg	½	6R6046	BTS-1Meg	Video Output Grid
R36	100KΩ	½	6R6075		Bias Network
R37	3900Ω	2		BTS-3900	Video Output Plate
R38	100Ω	½	6R6018	BTS-100	Video Output Plate
R39	10KΩ 20%	½	6R6054	BTS-10K	Isolation
R40	33KΩ	½	6R40012	BTS-33K	Video Output Screen
R41	150Ω 20%	½	6R3992	BTS-150	1st. Sound IF Amp. Cathode
R42	2200Ω 20%	½	6R6290	BTS-2200	1st. Sound IF Amp. Decoupling

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R43	120Ω	1	6R5551	BTS-120	Balancing
R44	33KΩ 20%	½	6R6013	BTS-33K	De-emphasis
R45	6800Ω	½	6R6428	BTS-6800	Ratio Det. Diode Load
R46	6800Ω	½	6R6428	BTS-6800	Ratio Det. Diode Load
R47	68KΩ 20%	½	6R6001	BTS-68K	Tone Compensation
R48	1500Ω	½	6R6038	BTS-1500	AF Amp. Cathode
R49	33KΩ	½	6R6410	BTS-33K	AF Amp. Plate
R50	470KΩ	½	6R6032	BTS-470K	Isolation
R51	470KΩ 20%	½	6R6032	BTS-470K	Isolation
R52	2.2Meg 5%	½	6R3927	BTS-2.2Meg 5%	1st. Sync. Clipper Grid
R53	680KΩ 20%	½	6R6228	BTS-680K	1st. Sync. Clipper Plate
R54	22KΩ 20%	½	6R6028	BTS-22K	2nd. Sync. Clipper Grid
R55	2200Ω	½	6R6069	BTS-2200	2nd. Sync. Clipper Cathode
R56	2200Ω 20%	½	6R6069	BTS-2200	2nd. Sync. Clipper Plate
R57	6800Ω	½	6R6428	BTS-6800	2nd. Sync. Clipper Plate
R58	560KΩ	½	6R5697	BTS-560K	Voltage Divider
R59	22KΩ 20%	½	6R6028	BTS-22K	Integrator Network
R60	10KΩ 20%	½	6R6054	BTS-10K	Integrator Network
R61	3300Ω	½	6R5581	BTS-3300	Vert. Peaking
R62	1800Ω	½	6R2089	BTS-1800	Vert. Blanking
R63	8700Ω	3	17K710950		Vert. Output Cathode - Wire Wound
R64	82KΩ	½	6R5644	BTS-82K	Horiz. Phase Det. Diode Load
R65	82KΩ	½	6R5644	BTS-82K	Horiz. Phase Det. Diode Load
R66	100KΩ 20%	½	6R6031	BTS-100K	Horiz. AFC Filter
R67	4.7Meg 20%	½	6R2122	BTS-4.7Meg	Horiz. AFC Filter
R68	33KΩ 20%	½	6R6028	BTS-22K	Horiz. Feedback
R69	150KΩ	1	6R410053	BTA-150K	Horiz. Feedback
R70	150KΩ	1	6R410053	BTA-150K	Horiz. Feedback
R71	1200Ω	½	6R6393	BTS-1200	Horiz. MV Cathode
R72	5600Ω	½	6R6117	BTS-5600	Horiz. MV Plate
R73	130KΩ	½	6R5831	BTS-130K	Horiz. MV Plate
R74	22K	½	6R6028	BTS-22K	Voltage Divider - See Note 5
R75	4700Ω	½	6R6080	BTS-4700	Horiz. Peaking
R76	330KΩ	½	6R6014	BTS-330K	Horiz. Output Grid
R77	4700Ω	½	6R6080	BTS-4700	Decoupling
R78	7.5Ω	5	1K711027		Surge Limiter - Wire Wound
R79		5			Filament Dropping - Wire Wound -Special Resistor 19ΩNot
R80	80Ω	10	17K711224	2 3/4A-75	Filament Dropping - Wire Wound
R81	120Ω	10	17K712038	1 3/4A-125	Filament Dropping - Wire Wound
R82	120Ω	½	6R5551	BTS-120	Damping

Note 1. Late Models use a 5600Ω Resistor in this application
Note 2. Not used in Models TS-316A & TS-315A
Note 3. Used only in Models TS-315A, B
Note 4. Not used in all Models.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI	RATING: DC RESISTANCE SEC	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No	REPLACEMENT DATA: CHICAGO PART No.	NOTES
T1	53Ω	325Ω	25K702429				Vert. Oscillator Trans.
			25K710730 ①				
T2	185Ω	81Ω	24C711285A				Horiz. Output Trans.
	Tapped @ 18Ω	SEC-2 0Ω					
T3	730Ω		25B703445				Vert. Output Trans.
	Tapped @ 40						
T4A	34Ω		24C702958	DY-10	MDF-30		Hor. Deflection Coils
B	3.1Ω		24C702655 ②				Vert. Deflection Coils
			24C703260 ②				
			24K702655 ②				
			24K703263 ②				

① Alternate Transformer
② Alternate Deflection Yoke

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI	RATING: DC RES. SEC.	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No	REPLACEMENT DATA: CHICAGO PART No.	INSTALLATION NOTES
T5	2.2KΩ	3.6Ω	210Ω	4Ω	25D710925	A-3678	A-2928		

SPEAKER

ITEM No.	RATINGS: FIELD RES.	RATINGS: V. C. IMP.	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA: QUAM PART No.	NOTES
SP1A	85Ω	3.6Ω	50C711061		6BS5S ③	③ Specify field current of .180A when ordering
			50C489002 ④			④ Alternate 6" E.M. Speaker
			50C701615 ④			⑤ Alternate 8" E.M. Speaker
	CONE DIA.	V. C. DIA.	50K703094 ⑤			
SP1B	8"	9/16"	50K703338 ⑤			

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

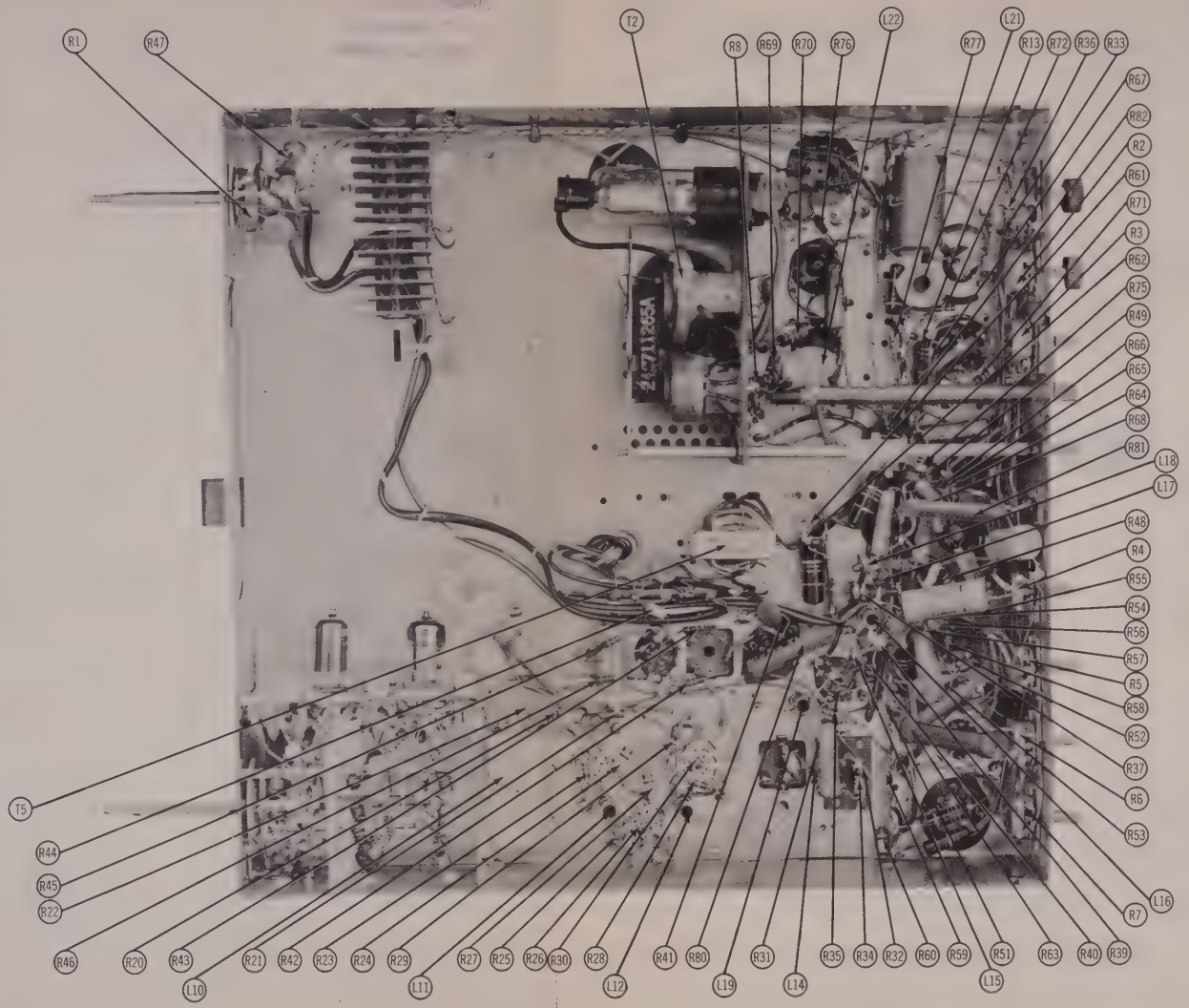
ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	MOTOROLA PART No.	MERIT PART No.	IRC PART No.	
L1	Ant. Matching Coil	0Ω		24A790033			
L2	Ant. Coils	0Ω		24K703079			Low Band
L3	Ant. Coils	0Ω		24K703078			High Band
L4	Ant. Coils	0Ω		24K703003			Low Band
L5	RF Coil	0Ω		24C703076			Channel 13
L6	RF Choke	3Ω		24K792577		CLA	3.3 Microhenries
L7	RF Coils	0Ω		24K703002			Low Band
L8	Osc. Coil	0Ω		24K703077			Channel 13
L9	Osc. Coils	0Ω		24C703001			Low Band
L10	1st. Video IF	.2Ω	.2Ω	24B702983			
L11	2nd. Video IF	.2Ω	.2Ω	1X712105			
L12	3rd. Video IF	.2Ω	.2Ω	1X712106			
L13	4th. Video IF	.3Ω	.3Ω	24K712104			(Includes Trap, Resistor, Capacitor RF (Choke and crystal Det.
L14	RF Choke	2.6Ω		24B711413			
L15	Peaking Coil	11.8Ω		24K712101			Wound on 5.6KΩ Resistor
L16	4.5MC Trap	2.2Ω		1X792736			
L17	Peaking Coil	9.3Ω		24K710140			
L18	Peaking Coil	15.5Ω		24K712102			Wound on 6.8KΩ Resistor
L19	Sound IF	1Ω		1X790341			
L20	Ratio Det	2.6Ω	.3Ω	24B702543			Tap @ .4Ω
L21	Horiz. Osc.	45Ω		24K701558			
L22	Horiz. Lin.	12.5Ω		24A710751			

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT	MOTOROLA PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	
M1	.180ADC	48B700555	NH-5	6Q4	*1028	* Brass Eylet Constructions
M2	.180ADC	48B700555	NH-5	6Q4	*1028	

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M3	RF Tuner	1X711303	Complete with Tubes
M4A	Crystal	48C711052	1N60 Part of L13
B	Crystal	48K711077	1N60 Part of L13
M5	Switch		Area Selector
M6A	Centering Magnet	48A711242	
B	Centering Magnet	48A711241	
M7A	Ion Trap	24K711843	
B	Ion Trap	24K703013	
C	Ion Trap	24K703092	
D	Ion Trap	24A703090	
	Knob	36C700886	Channel Selector
	Knob	36K700887	Contrast
	Knob	36C700888	Fine Tuning & Off/On Volume
	Knob	36A485457	Vert. & Horiz. Hold on Rear of Chassis



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PHOTOFACT* Folder

SPARTON MODELS 5207, 5208, 5210, 5220, 5225, 5226, 5262, 5263, 5265, 5267, 5268, 5270, 5272, 5273

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

MODEL 5208

SPARTON MODELS 5207, 5208, 5210, 5220, 5225, 5226, 5262, 5263, 5265, 5267, 5268, 5270, 5272, 5273

HOWARD W. SAMS & CO., INC. • Indianapolis, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

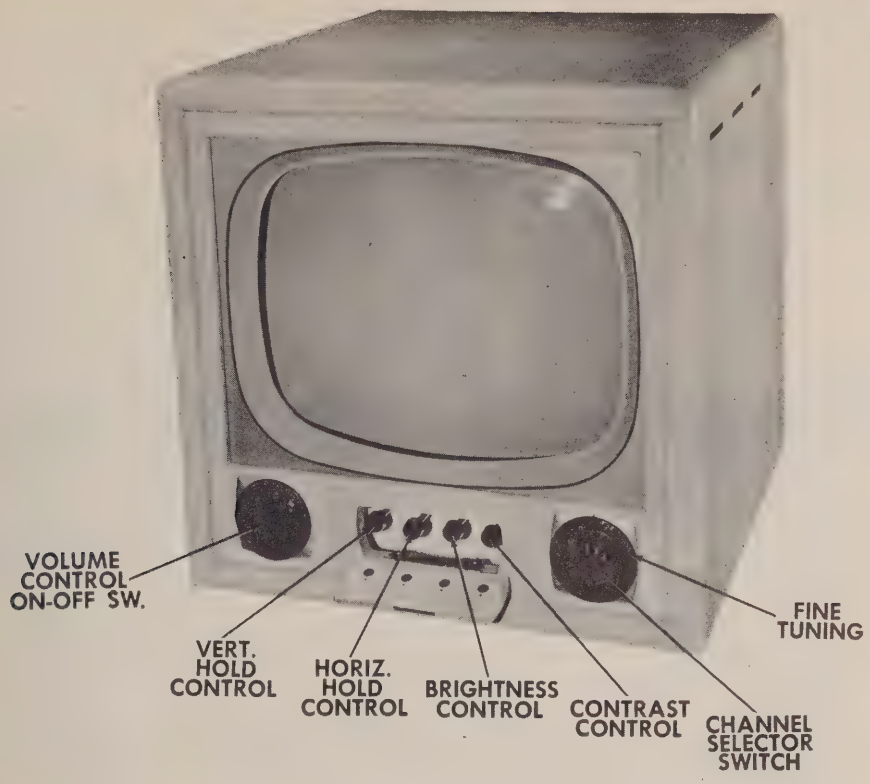
DATE 5-52 SET 167 FOLDER 14

PHOTOFACT* Folder

*TRADE MARK

SPARTON MODELS 5207, 5208, 5210, 5220, 5225, 5226, 5262, 5263, 5265, 5267, 5268, 5270, 5272, 5273

SPARTON MODELS 5207, 5208, 5210, 5220, 5225, 5226, 5262, 5263, 5265, 5267, 5268, 5270, 5272, 5273



SPARTON MODEL 5208

TRADE NAME	Sparton	CHASSIS	MODELS
		26SD172, A	5265, 5267, 5268
		26SD172C	5220, 5225, 5226, 5270, 5272, 5273
		26SS172, A	5207, 5208, 5262, 5263
		26SS172B	5210
MANUFACTURER	Sparks-Withington Co., Jackson, Mich.		
TYPE SET	Television Receiver		
TUBES	Twenty-Six		
POWER SUPPLY	110-120 Volts AC-60 Cycle		RATING 2.2 Amp. @ 117 Volts AC
TUNING RANGE - Channels 2 thru 13			

INDEX

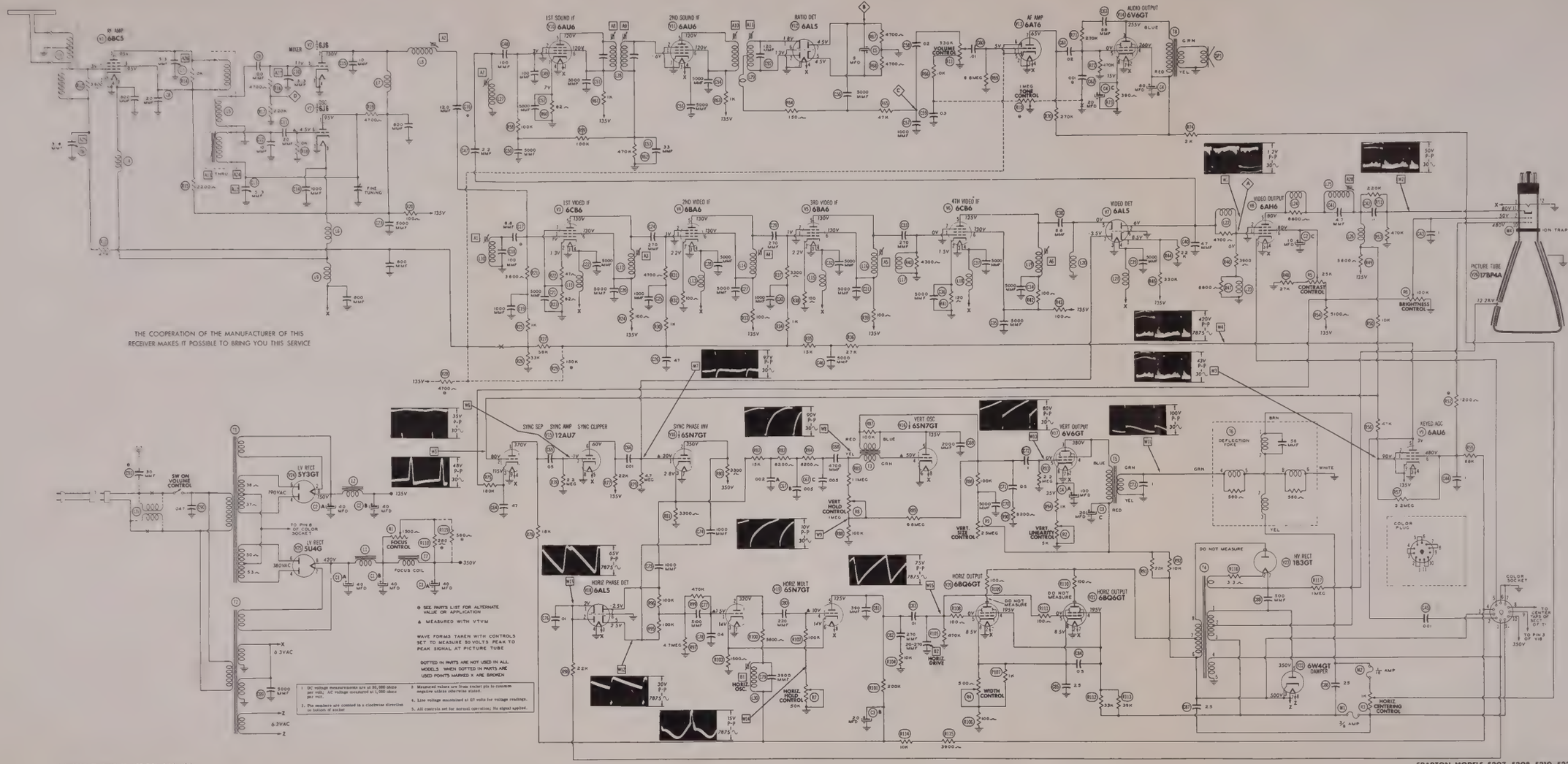
Alignment Instructions 6, 7
Disassembly Instructions 11
Horizontal Sweep Circuit Adjustments 11
Parts List and Description 14, 15, 16
Photographs
- Cabinet - Rear View 11
- Capacitor & Alignment Identification 4, 9
- Chassis - Top View 3

Photos (cont.)
- RF Tuner 10
- Resistor & Inductor Identification 12, 17

Resistance Measurements 8
Schematic (Alternate Tuner) 13
Schematic (Alternate Tuner Model 5210 only) 18
Schematic (T.V.) 2
Tube Placement Charts 5

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

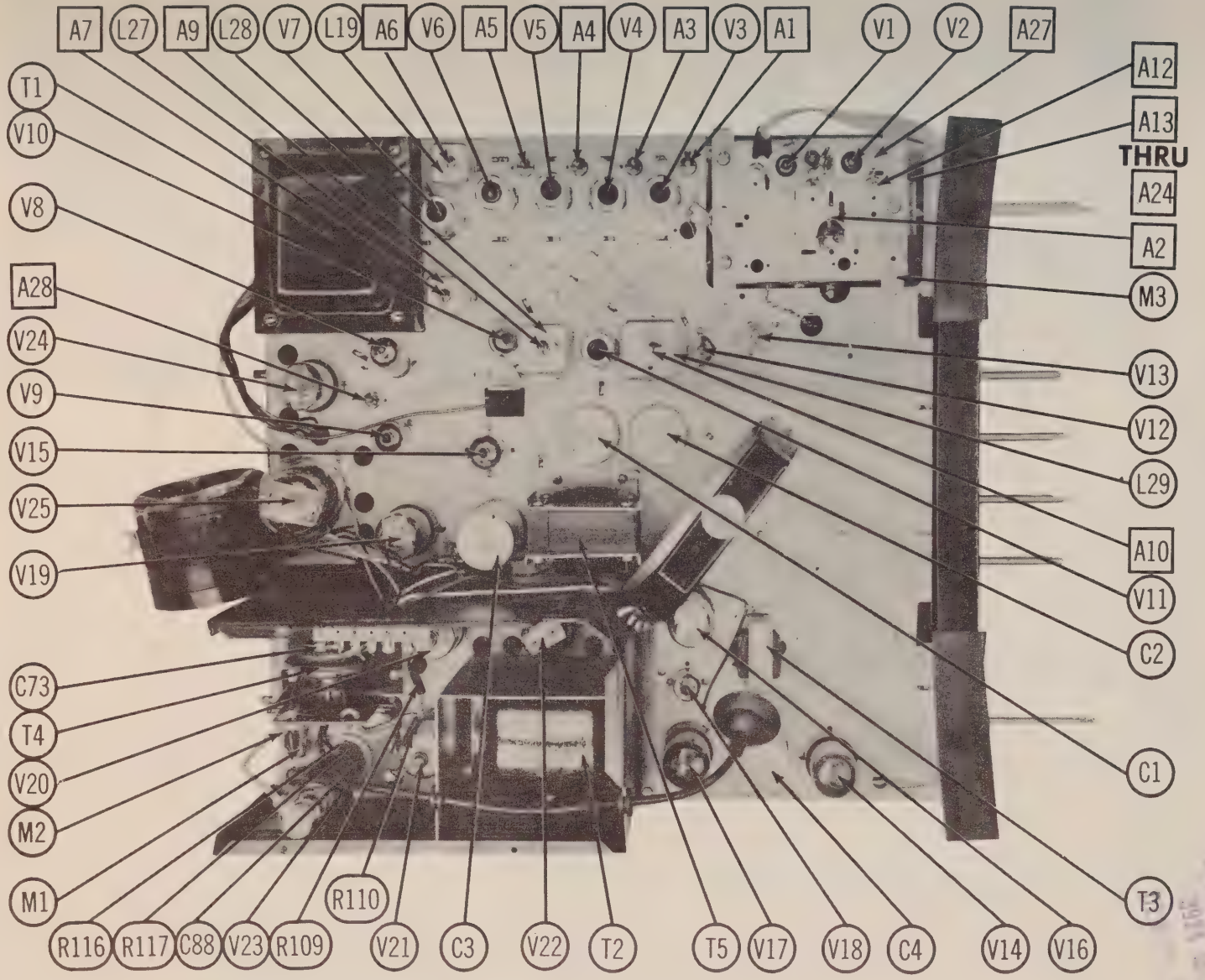

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
RF AMP V1 6BC5
MIXER V2 6J6
OSC V3 6J6
1ST SOUND IF V10 6AU6
2ND SOUND IF V11 6AU6
RATIO DET V12 6AL5
AF AMP V13 6AT6
AUDIO OUTPUT V14 6V6GT
1ST VIDEO IF V3 6CB6
2ND VIDEO IF V4 6BA6
3RD VIDEO IF V5 6BA6
4TH VIDEO IF V6 6CB6
VIDEO DET V7 6AL5
VIDEO OUTPUT V8 6AH6
PICTURE TUBE V9 17BP4A
SYNC SEP SYNC AMP SYNC CLIPPER 12AU7
SYNC PHASE INV V18 6SN7GT
VERT OSC V19 6SN7GT
VERT OUTPUT V17 6V6GT
KEYED AGC V15 6AU6
LV RECT V24 5Y3GT
LV RECT V25 5U4G
HV RECT V23 1B3GT
HORIZ PHASE DET V18 6AL5
HORIZ MULT V19 6SN7GT
HORIZ OUTPUT V20 6BQ6GT
HORIZ OUTPUT V21 6BQ6GT
DAMPER V22 6W4GT
SW ON VOLUME CONTROL
FOCUS CONTROL
FOCUS COIL
FINE TUNING
1 MEG TONE CONTROL
330K VOLUME CONTROL
CONTRAST CONTROL
BRIGHTNESS CONTROL
VERT. HOLD CONTROL 1 MEG
VERT. SIZE CONTROL 2.5 MEG
VERT. LINEARITY CONTROL 5K
HORIZ HOLD CONTROL 50K
HORIZ OSC.
HORIZ DRIVE
WIDTH CONTROL
HORIZ CENTERING CONTROL
DEFLECTION YOKE
COLOR PLUG
COLOR SOCKET
DO NOT MEASURE
TO PIN 6 OF COLOR SOCKET
TO CENTER TAPS OF SECT. OF T1
TO PIN 3 OF V18
ION TRAP
6.3VAC
190VAC
360VAC
420V
350V
135V
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
MEASURED WITH VTVM
WAVE FORMS TAKEN WITH CONTROLS SET TO MEASURE 80 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN
1. DC voltage measurements are at 20,000 ohms per volt; AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; No signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1952

SPARTON MODELS 5207, 5208, 5210, 5220, 5225, 5226, 5262, 5263, 5265, 5267, 5268, 5270, 5272, 5273

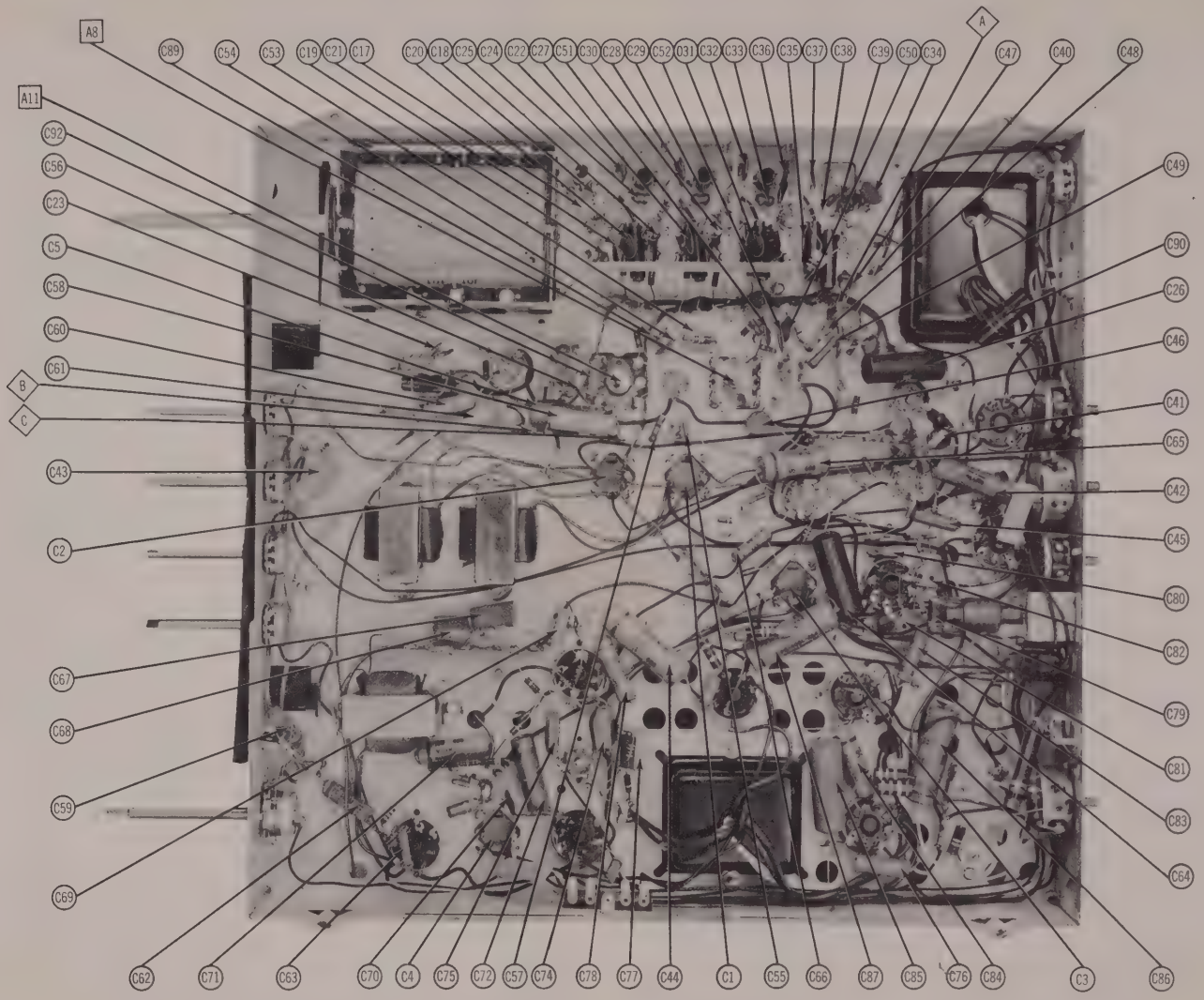
SPARTON MODELS 5207, 5208, 5210, 5220, 5225, 5226, 5262, 5263, 5265, 5267, 5268, 5270, 5272, 5273



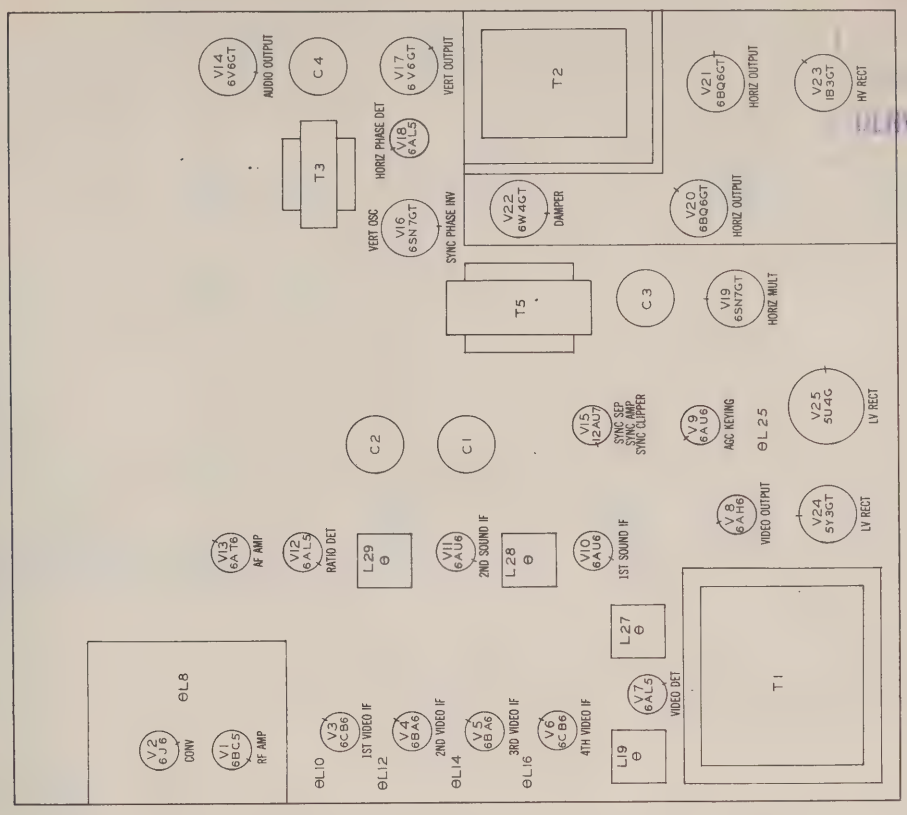
CHASSIS TOP VIEW

PROPERTY OF
L. F. BLANKENSHIP

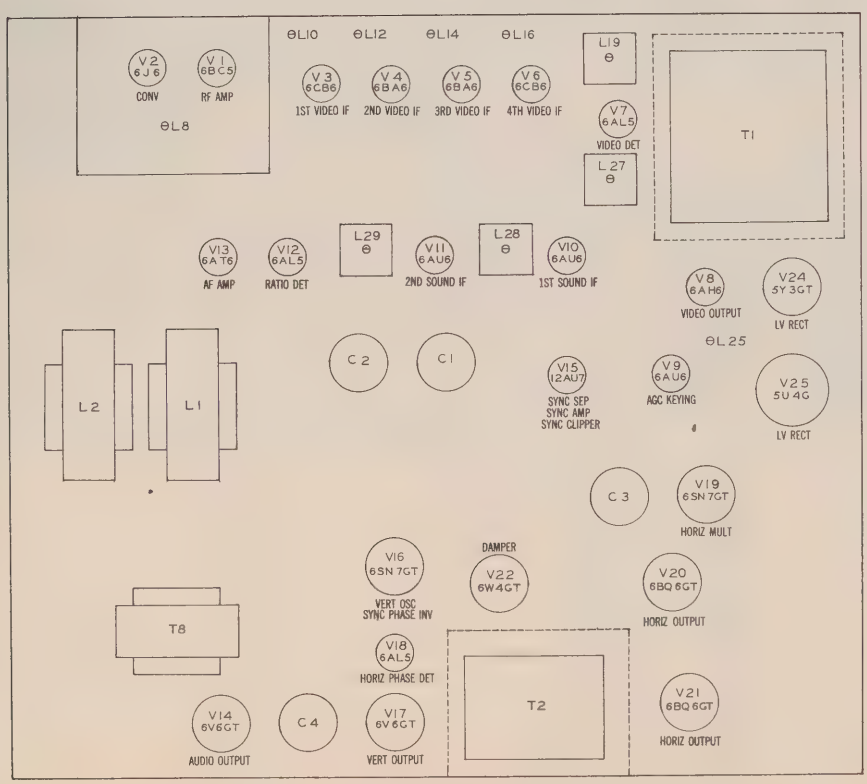
SPARTON MODELS 5207, 5208, 5210, 5220, 5225,
5226, 5262, 5263, 5265, 5267, 5268, 5270, 5272, 5273



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



TOP VIEW



BOTTOM VIEW

TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube, (V19) from its socket.

VIDEO IF ALIGNMENT

Remove the converter tube, (V2), and replace it with a 6J6 which has Pin 1 removed, this will disable the local oscillator and prevent the possibility of erroneous indications.
Connect the negative lead of a 3 volt battery to the ungrounded lead of C26, connect the positive lead to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	21.75MC (Unmod.)	Any	DC probe to point ◇A◇ Common to chassis.	A1	Adjust for MINIMUM deflection.
2.	"	"	22.5MC	"	"	A2	Adjust for maximum deflection.
3.	"	"	25.25MC	"	"	A3	"
4.	"	"	24.25MC	"	"	A4	"
5.	"	"	23.25MC	"	"	A5	"
6.	"	"	26MC	"	"	A6	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	25MC (10MC Swp)	21.75MC 26.25MC	Any	Vert. amp. to point ◇A◇ Low side to chassis.		Check for response curve similar to fig.1. If necessary retouch A2 thru A6 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	10KΩ	High side thru 10KΩ to point ◇A◇ Low side to chassis.	4.5MC (Unmod.)	Any	DC probe to point ◇B◇ Common to chassis.	A7, A8, A9, A10	Adjust for maximum deflection.
9.	"	"	"	"	DC probe to point ◇C◇ Common to chassis.	A11	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	10KΩ resistor	High side thru 10KΩ to Point ◇A◇ Low side to chassis.	4.5MC (450KC swp)	4.5MC	Any	Vert. amp. to Point ◇B◇ Low side to chassis.	A7, A8, A9, A10	Disconnect stabilizor capacitor C5. Adjust for maximum amplitude and symmetry as per Fig. 2.
9.	"	"	"	"	"	Vert. amp. to Point ◇C◇ Low side to chassis.	A11	Reconnect capacitor C5. Adjust A11 so 4.5MC occurs at center of crossover lines as per Fig. 3. SLIGHTLY retouch A10 for max. amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels, it may be possible to correct them in one step using A12. It should be noted that this is an all channel oscillator circuit adjustment and should not be adjusted for any individual channel.
If adjustment of A12 will not bring all channels well within the range of the fine tuning control, it will be necessary to adjust the channel strip adjustment for each channel that is off frequency. The channel strip adjustments are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC swp.)	211.25MC 215.75MC	13	Vert. amp. to Point ◇A◇ Low side to chassis.	A13	Adjust to place sound marker in trap "notch" as shown in Fig. 4. The video marker should be at 50%.
			207MC (10MC swp.)	205.25MC 209.75MC	12		A14	
			201MC (10MC swp.)	199.25MC 203.75MC	11		A15	
			195MC (10MC swp.)	193.25MC 197.75MC	10		A16	
			189MC (10MC swp.)	187.25MC 191.75MC	9		A17	
			183MC (10MC swp.)	181.25MC 185.75MC	8		A18	
			177MC (10MC swp.)	175.25MC 179.75MC	7		A19	
			85MC (10MC swp.)	83.25MC 87.75MC	6		A20	
			79MC (10MC swp.)	77.25MC 81.75MC	5		A21	
			69MC (10MC swp.)	67.25MC 71.75MC	4		A22	
			63MC (10MC swp.)	61.25MC 65.75MC	3		A23	
			57MC (10MC swp.)	55.25MC 59.75MC	2		A24	

PROPERTY OF

ALIGNMENT INSTRUCTIONS (CONT.)

RF MIXER ALIGNMENT

The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC swp.)	205.25MC 209.75MC	12	Vert. amp. thru 10KΩ to Point ◇D◇. Low side to chassis.	A25, A26, A27	Adjust for response curve similar to Fig. 5 with markers above 90%.
			213MC (10MC sep.)	211.25MC 215.75MC	13	"		Check all channels for response curve similar to Fig. 5. If markers fall below 70% on any channel, make slight adjustment of A25, A26 & A27 with channel switch set for that channel. Recheck all channels to see that they have not been seriously effected.
			201MC (10MC swp.)	199.25MC 203.75MC	11			
			195MC (10MC swp.)	193.25MC 197.75MC	10			
			189MC (10MC swp.)	187.25MC 191.75MC	9			
			183MC (10MC swp.)	181.25MC 185.75MC	8			
			177MC (10MC swp.)	175.25MC 179.75MC	7			
			85MC (10MC swp.)	83.25MC 87.75MC	6			
			79MC (10MC swp.)	77.25MC 81.75MC	5			
			69MC (10MC swp.)	67.25MC 71.75MC	4			
			63MC (10MC swp.)	61.25MC 65.75MC	3			
			57MC (10MC swp.)	55.25MC 59.75MC	2			

4.5MC TRAP ADJUSTMENT

After alignment is completed and set restored to original operation, tune in a strong TV station and adjust the fine tuning control until sound just begins to appear in the picture. Examine the picture for 4.5MC interference, (grain appearance in horizontal lines). If interference is present adjust A28 to eliminate it. If adjustment of A28 will not completely eliminate the interference, SLIGHTLY retouch A7 to aliminate it.

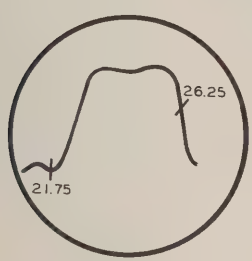


FIG.1

FIG. 2

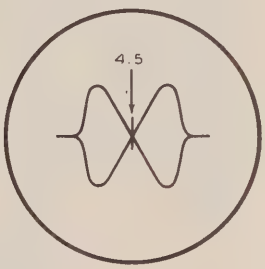


FIG. 3

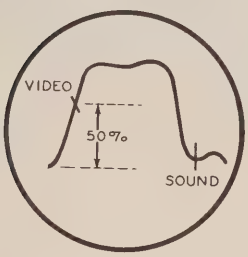


FIG.4

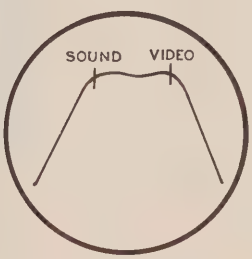


FIG.5

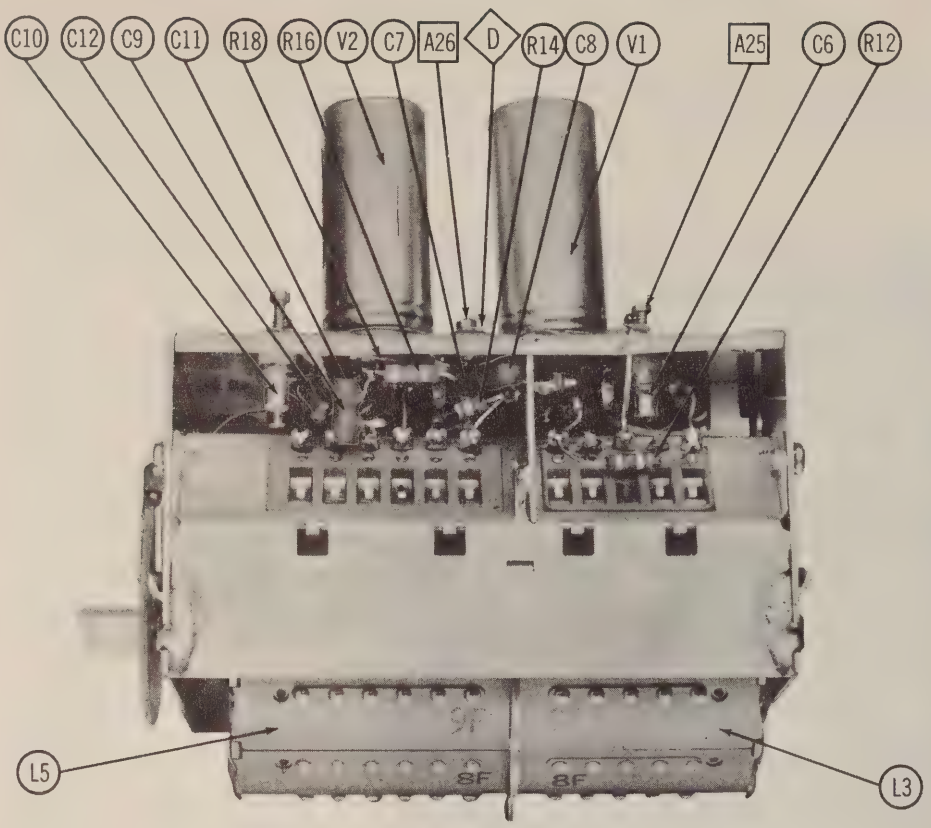
SPARTON MODELS 5207, 5208, 5210, 5220, 5225, 5226, 5262, 5263, 5265, 5267, 5268, 5270, 5272, 5273

RESISTANCE MEASUREMENTS

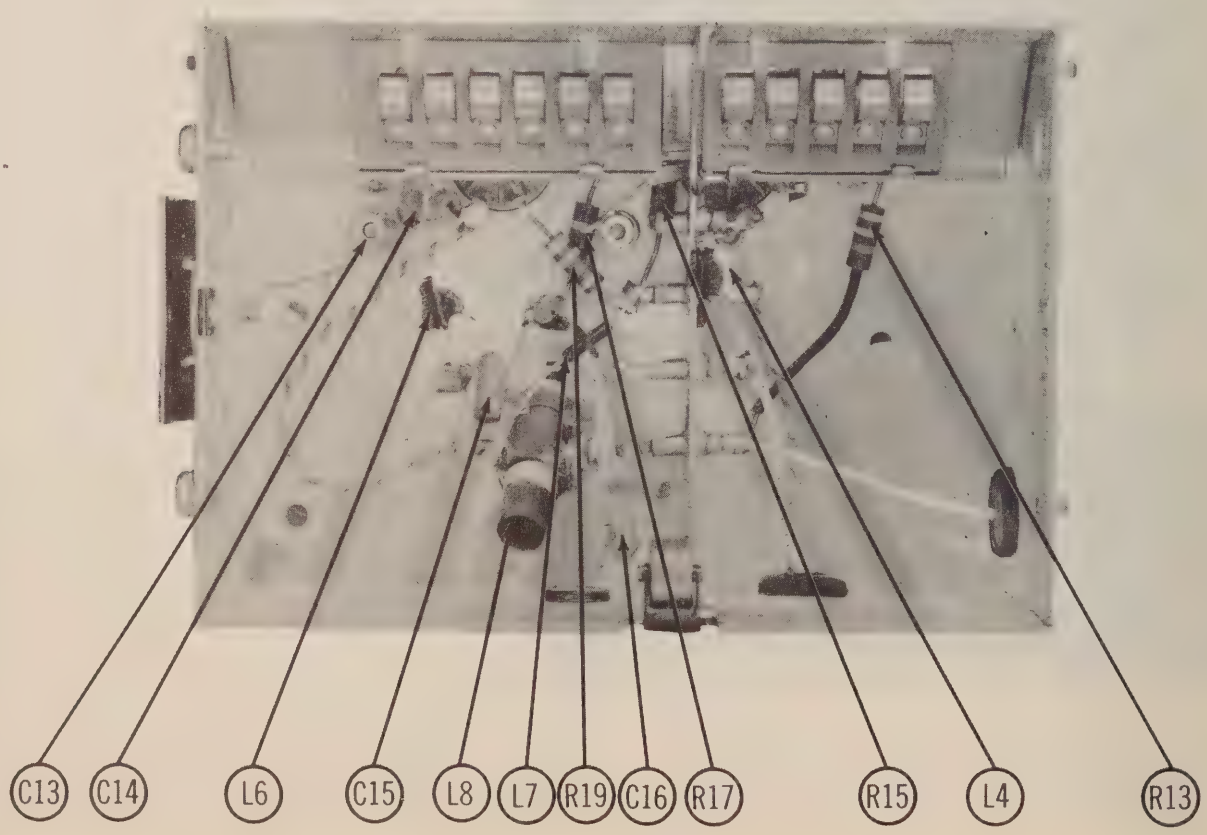
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	80KΩ	0Ω	.1Ω	0Ω	■2.4KΩ	■2.4KΩ	0Ω		
V 2	6J6	■4.9KΩ	■210Ω	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6CB6	36KΩ	129Ω	0Ω	.1Ω	■210Ω	■210Ω	82Ω		
V 4	6BA6	95KΩ	0Ω	0Ω	.1Ω	■210Ω	■210Ω	100Ω		
V 5	6BA6	94KΩ	0Ω	0Ω	.1Ω	■210Ω	■210Ω	100Ω		
V 6	6CB6	2.8Ω	120Ω	0Ω	.1Ω	■310Ω	■210Ω	0Ω		
V 7	6AL5	22KΩ	3.9KΩ	0Ω	.1Ω	2.8Ω	0Ω	4.7Meg		
V 8	6AH6	3.9KΩ	0Ω	0Ω	.1Ω	■5.6KΩ	■13KΩ	0Ω		
V 9	6AU6	■62KΩ	■110Ω	0Ω	.1 Ω	130KΩ	#68KΩ	■110Ω		
V 10	6AU6	670KΩ	0Ω	.1Ω	0Ω	■1.1KΩ	■1.1KΩ	82Ω		
V 11	6AU6	470KΩ	0Ω	0Ω	.1Ω	■1.1KΩ	■1.1KΩ	0Ω		
V 12	6AL5	INF	INF	0Ω	.1Ω	4.7KΩ	0Ω	4.7KΩ		
V 13	6AT6	6.8Meg	0Ω	0Ω	.1Ω	INF	INF	†270KΩ		
V 14	6V6GT	INF	.1Ω	†2.8KΩ	†2.5KΩ	470KΩ	740KΩ	0Ω	390Ω	
V 15	12AU7	#32KΩ	■15KΩ	■180KΩ	.1Ω	.1Ω	■22KΩ	2.2Meg	0Ω	0Ω
V 16	6SN7GT	4.7Meg	†3.6KΩ	3.3KΩ	1.6Meg	#950KΩ	0Ω	0Ω	.1Ω	
V 17	6V6GT	INF	.1Ω	#7.2KΩ	#7.2KΩ	2.2Meg	INF	0Ω	2.4KΩ	
V 18	6AL5	22KΩ	22KΩ	.1Ω	0Ω	4.8Meg	0Ω	4.8Meg		
V 19	6SN7GT	5.1Meg	#19KΩ	1.5KΩ	135KΩ	#215KΩ	1.5KΩ	0Ω	.1Ω	
V 20	6BQ6GT	INF	0Ω	INF	†18KΩ	470KΩ	470KΩ	.1Ω	400Ω	TOP CAP #130Ω
V 21	6BQ6GT	INF	0Ω	INF	†18KΩ	470KΩ	.1Ω	.1Ω	400Ω	TOP CAP #130Ω
V 22	6W4GT	INF	INF	300KΩ	#68KΩ	†350Ω	#0Ω	#0Ω	#.2Ω	
V 23	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								TOP CAP #220Ω
V 24	5Y3GT	INF	30KΩ	INF	37Ω	INF	36Ω	INF	30KΩ	
V 25	5U4G	INF	80KΩ	3Ω	53Ω	160KΩ	50Ω	†350Ω	80KΩ	
V 26	17BP4A	.1Ω	25KΩ	PIN 10 #69KΩ	PIN 11 160KΩ	PIN 12 0Ω				

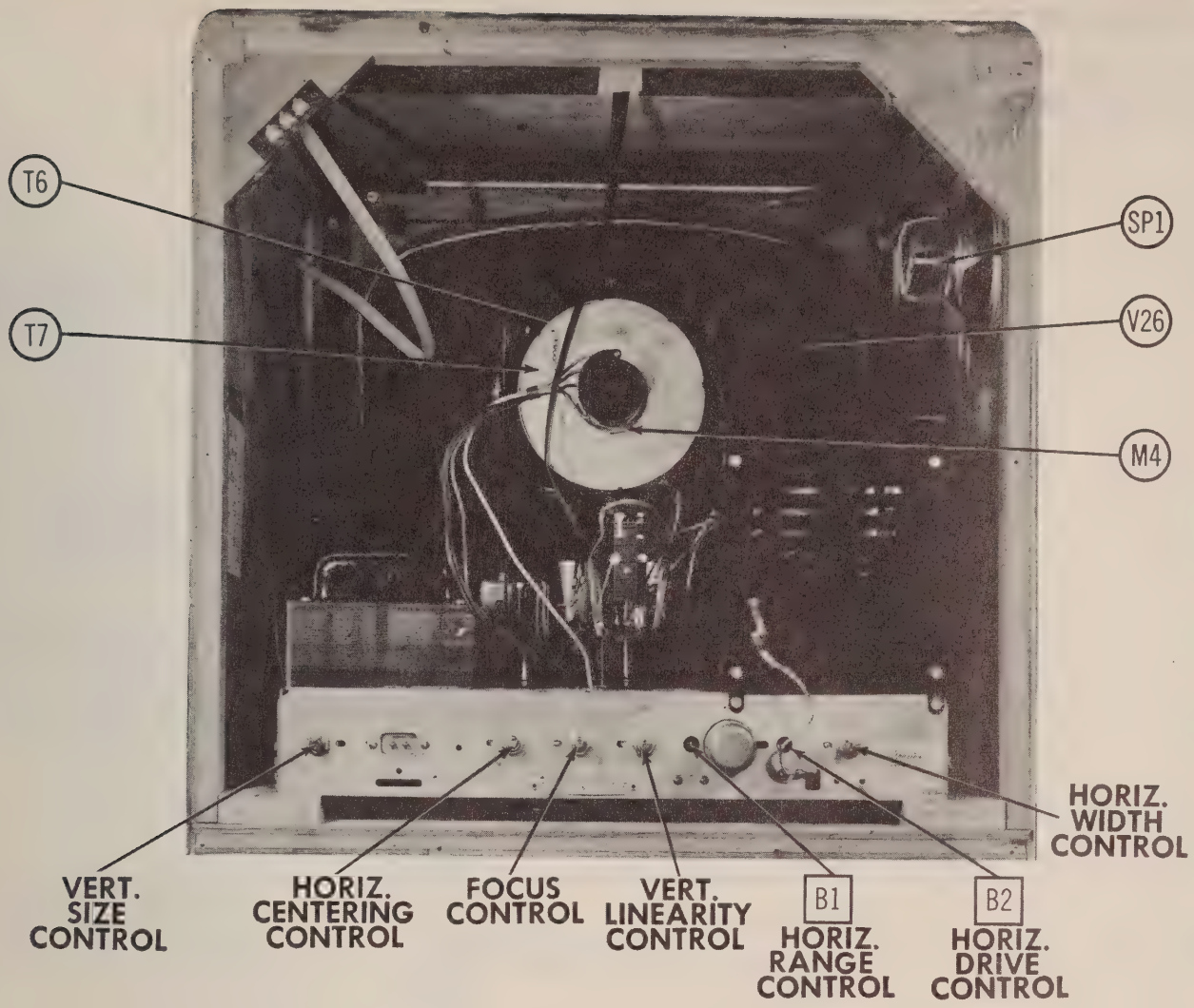
ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PIN 2 OF V25
■ MEASURE FROM PIN 8 OF V24
MEASURED FROM PIN 3 OF V22



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to the mid-position of its range.

Adjust the horizontal frequency slug, (B1), to the center of the range over which the picture sychronizes horizontally.

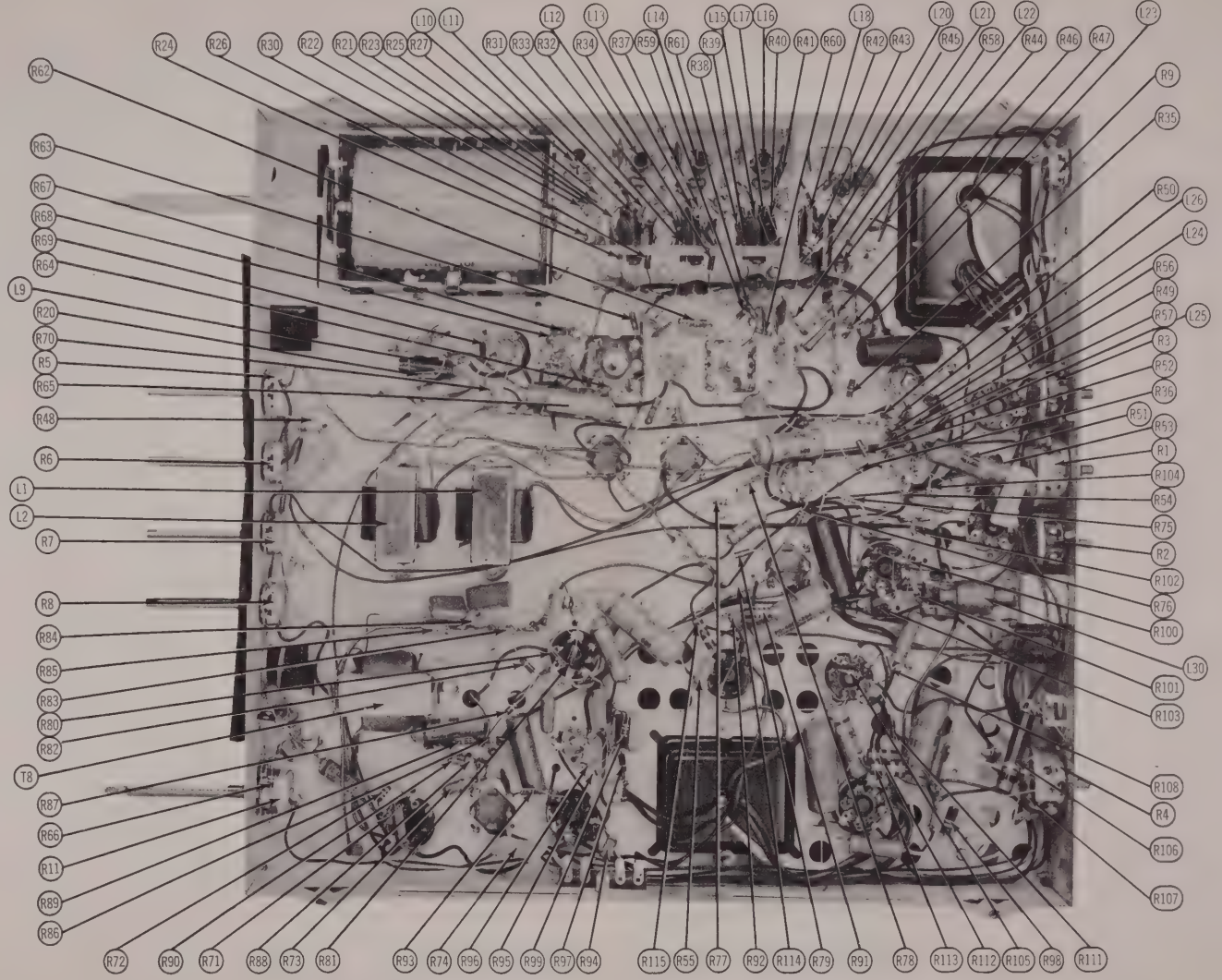
Adjust the horizontal drive trimmer, (B2), for best compromise between brightness and horizontal linearity.

DISASSEMBLY INSTRUCTIONS

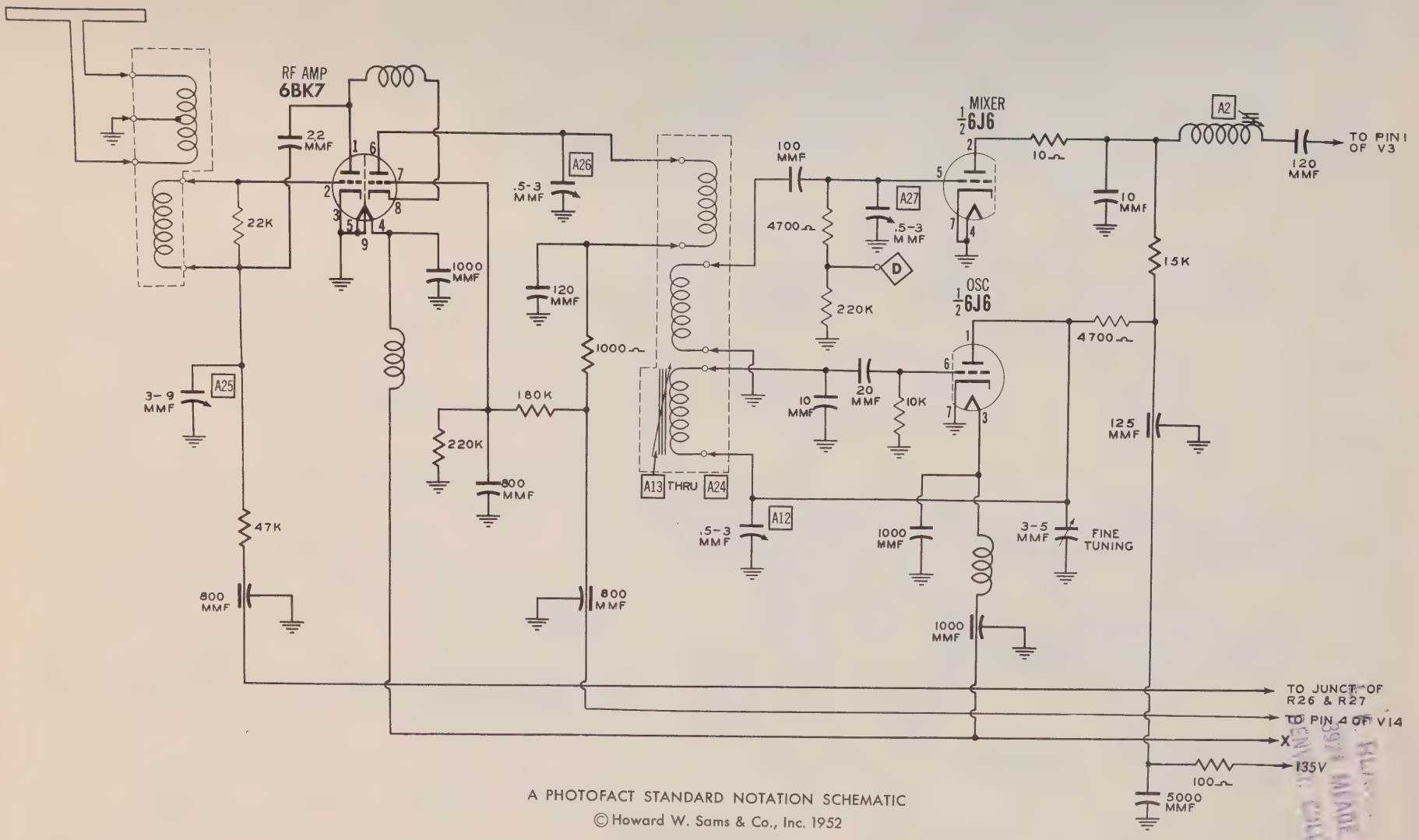
1. Remove 3 push on type control knobs from front panel.
2. Remove 10 wood screws from rear cover. Remove rear cover.
3. Disconnect speaker and built-in antenna.
4. Remove 2 speaker nuts holding speaker. Remove speaker.
5. Remove 2 wood screws holding antenna terminals. Remove antenna terminals.
6. Remove 4 chassis bolts. Remove chassis.

NOTE: FOR PICTURE TUBE REMOVAL, IT IS NECESSARY TO REMOVE CHASSIS AS OUTLINED ABOVE.

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST
DENVER, COLORADO



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1952

[illegible] MIAMI ST.
[illegible] COLORADO

ALTERNATE TUNER SCHEMATIC

SPARTON MODELS 5207, 5208, 5210, 5220, 5225, 5226, 5262, 5263, 5265, 5267, 5268, 5270, 5272, 5273

3021 MEADE ST.
DENVER, COLORADO

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No	USE	REPLACEMENT DATA: SPARTON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	6BC5	6BC5	7BD	
B	RF Amplifier	6AG5	6AG5	7BD	
V2	Converter	6J6	6J6	7BF	
V3	1st. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	6BA6	6BA6	7BK	
V5	3rd. Video IF Amp.	6BA6	6BA6	7BK	
V6	4th. Video IF Amp.	6CB6	6CB6	7CM	
V7	Video Detector	6AL5	6AL5	6BT	
V8	Video Output	6AH6	6AH6	7BK	
V9	Keyed AGC	6AU6	6AU6	7BK	
V10	1st. Sound IF Amp.	6AU6	6AU6	7BK	
V11	2nd Sound IF Amp.	6AU6	6AU6	7BK	
V12	Ratio Detector	6AL5	6AL5	6BT	
V13	AF Amplifier	6AT6	6AT6	7BT	
V14	Audio Output	6V6GT	6V6GT	7AC	
V15	Sync. Seperator - Sync. Amplifier - Sync. Clipper	12AU7	12AU7	9A	
V16	Vert. Oscillator - Sync. Phase Inv. Vert. Output	6SN7GT	6SN7GT	8BD	
V17	Vert. Output	6V6GT	6V6GT	7AC	
V18	Horiz. Phase Det.	6AL5	6AL5	6BT	
V19	Horiz. Mult.	6SN7GT	6SN7GT	8BD	
V20	Horiz. Output	6BQ6GT	6BQ6GT	8AM	
V21	Horiz. Output	6BQ6GT	6BQ6GT	8AM	
V22	Damper	6W4GT	6W4GT	4CG	
V23	HV Rectifier	1B3GT	1B3GT	4C	
V24	LV Rectifier	5Y3GT	5Y3GT	5T	
V25	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No	REPLACEMENT DATA: SPARTON PART No.	REPLACEMENT DATA: SYLVANIA PART No.	RTMA BASE TYPE	NOTES
V26	17BP4A	17BP4A	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SPARTON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	475		AFH2-72		UP4450		TVL-2830	▲ Filter
B	40	475							▲ Filter
C2A	40	350		AFH3-54		UPT44145		TVL-2830	■ Filter
B	40	350						TVA-1504	▲ Filter
C	10	200							▲ Video Amp. Screen
C3A	40	475		AFH3-42		UPT42U145		TVL-4840	▲ Decoupling
B	20	450							▲ Decoupling
C	20	450							■ Vert. Output Dec.
C4A	100	50		AFH4-87		UPT4445V1		TVL-2710	■Vert. Output Cathode
B	80	450				BR205A		TVA-1310	▲ Audio Output Dec.
C	20	50							▲ Audio Output Cathode
C5	5	50		PR5150/4		BR550		TVA-1303	Stabilizing Cap
C6	3-9				829-10				Variable Trimmer
C7	.5-3				829-3				Variable Trimmer
C8	120			5U20	D6-121	TM5T12	GP2K-121	5GA-T12	RF Amp. Decoupling
C9	100			5U00	D6-101	TM5T1	GP1K-101	5GA-T1	RF Coupling
C10	.5-3				829-3				Variable Trimmer
C11	20			5U20NPO	TCZ-20		NP0K-200		Osc. Grid Cap.
C12	10			5U0N750	TCN-10		N750K-100	5TCU-Q1	Fixed Trimmer
C13	.5-3				829-3				Variable Trimmer
C14	1000			5U000	D6-102	TM5D1	GP2L-102	5HK-D1	Conv. Fil. Bypass
C15	10			5U10NPO	TCZ-10		NP0K-100	5TCC-Q1	Fixed Trimmer
C16	120			5U120	D6-121	TM5T12	GP2K-121	5GA-T12	IF coupling †
C17	6.8			5I6.8NPO	TCZ-6.8		NP0K-6R8		IF coupling †
C18	100			5U100NPO	TCZ-100		NP0K-333-401	5TCC-T1	Fixed Trimmer
C19	3000			5U000	D6-102	TM5D1	GP2L-102	5HK-D1	AGC Filter
C20	5000			BPD-005	DD-502	TM5D5	5II-005	5HK-D5	1st. Video IF Dec.
C21	5000			BPD-005	DD-502	TM5D5	5II-005	5HK-D5	1st. Video IF Cathode
C22	5000			BPD-005	DD-502	TM5D5	5II-005	5HK-D5	1st. Video IF Fil.
C23	5000			BPD-005	DD-502	TM5D5	5II-005	5HK-D5	AGC Filter
C24	270			5I270	D6-271		GP2K-271	5GA-T27	IF Coupling
C25	1000			5U000	D6-102	TM5D1	GP2L-102	5HK-D1	AGC Filter
C26	.47	200		P288-47		PJP5		2TM-P47	AGC Filter
C27	5000			BPD-005	DD-502	TM5D5	5II-005	5HK-D5	2nd. Video IF Dec.
C28	5000			BPD-005	DD-502	TM5D5	5II-005	5HK-D5	2nd. Video IF Fil.
C29	270			5I270	D6-271		GP2K-271	5GA-T27	IF Coupling
C30	1000			5U000	D6-102	TM5D1	GP2L-102	5HK-D1	AGC Filter
C31	5000			BPD-005	DD-502	TM5D5	5II-005	5HK-D5	3rd.Video IF Dec.
C32	5000			BPD-005	DD-502	TM5D5	5II-005	5HK-D5	3rd. Video IF Fil.
C33	270			5I270	D6-271		GP2K-271	5GA-T27	IF Coupling
C34	5000			BPD-005	DD-502	TM5D5	5II-005	5HK-D5	4th. Video IF Plate
C35	5000			BPD-005	DD-502	TM5D5	5II-005	5HK-D5	4th. Video IF Screen
C36	5000			BPD-005	DD-502	TM5D5	5II-005	5HK-D5	4th. Video IF Cathode
C37	5000			BPD-005	DD-502	TM5D5	5II-005	5HK-D5	4th. Video IF Fil.
C38	6.8			5I6.8NPO	TCZ-6.8		NP0K-6R8		IF Coupling
C39	5000			BPD-005	DD-502	TM6D5	5II-005	5HK-D5	Video Det. Fil. Bypass
C40	4.7			5I4.7NPO	TCZ-4.7		NP0K-4R7		Video Det. Filter
C41	47			5I47NPO	TCZ-47		NP0L-470	5TCC-Q47	Fixed Trimmer
C42	.1	400		P488-1	DF-104	PTE4P1		4TM-P1	Video Coupling
C43	.1	300		P288-1	DF-104	PJ2P1		2TM-P1	Picture Tube Grid
C44	.1	600		P688-1	DF-104	PTE6P1		6TM-P1	RF Bypass
C45	.001	600		P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	Horiz. Feedback
C46	5000			BPD-005	DD-502	TM5D6	5II-005	5HK-D6	AGC Filter
C47	3.3				TCZ-3.2		NP0K-3R2		Sound IF Coupling
C48	100			5I100	D6-101	TM5T1	GP1K-101	5GA-T1	Sound IF Coupling
C49	100			5U00	D6-101	TM5T1	GP1K-101	5GA-T1	Voltage Divider
C50	5000			BPD-005	DD-502	TM5D5	5II-005	5HK-D5	AVC Filter
C51	5000			BPD-005	DD-502	TM5D5	5II-005	5HK-D5	1st. Sound IF Dec.
C52	5000			BPD-005	DD-502	TM5D5	5II-005	5HK-D5	1st. Sound IF Cathode
C53	33	500		5I33	D6-330		GP1K-330	5GA-Q33	2nd. Sound IF Grid
C54	5000			BPD-005	DD-502	TM5D5	5II-005	5HK-D5	2nd. Sound IF Dec.

CAPACITORS (CONT.)

ITEM No	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SPARTON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C55	5000			BPD-005	DD-502	TM5D5	5II-005	5HK-D5	2nd. Sound IF Fil.
C56	5000			BPD-005	DD-503	TM5D6	5II-005	5HK-D5	Diode Load Cap.
C57	1000			5I1000	D6-102	TM5D1	GP2S-102	5HK-D1	De-Emphasis
C58	.02	400		P488-03	DF-203	PTE4S2		4TM-S3	Audio Coupling
C59	.03	200		P488-03		PTE4S3		4TM-S3	Tone Comp.
C60	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C61	.03	600		P688-03	DF-203	PTE6S2		6TM-S2	Audio Coupling
C62	.001	600		P688-001	D6-103	PTE6D1	GP2L-103	6TM-D1	Audio Output Grid †
C63	68	500		1469-00007	D6-680	5W5Q7	GP1K-680	M5-47	Tone Comp.
C64	.47	200		P288-47		PJP5		2TM-P47	Sync. Sep. Cathode
C65	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	Sync. Coupling
C66	.001	600		P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	Sync. Coupling
C67A	.002			P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	Vert. Integrator Net.
B	.005			P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Vert. Integrator Net
C	.005			P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Vert. Integrator Net.
C68	4700	500		1464-005		1R5D5		M5-25	Vert. Osc. Grid Cap.
C69	2000	500		1464-003		1R5D2		M5-22	Vert. Osc. Plate
C70	5000			BPD-002	DD-502	TM5D5	5II-005	5HK-D5	RF Bypass
C71	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Vert. Discharge
C72	.1	400		P488-1	DF-104	PTE4P1		4TM-P1	Vert. Sweep Coupling
C73	.1	200		P288-1	DF-104	PJP1		2TM-P1	Fixed Trimmer
C74	1000	500		1468-001	D6-102	1W5D1	GP2L-102	1FM-S1	Horiz. Sync. Coupling
C75	1000	500		1468-001	D6-102	1W5D1	GP2L-102	1FM-S1	Horiz. Sync. Coupling
C76	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Voltage Divider
C77	5100	500		1464-005		1DR5D5		M5-25	Horiz. AFC Coupling
C78	.04	200		P288-04		PTE6S4		6TM-S4	Horiz. AFC Filter
C79	3900	500		1464-004		1DR5D4		M5-24	Fixed Trimmer
C80	220	500		1469-00025		5R5T25			Horiz. MV Feedback
C81	390	500		1469-0004		5R5T4		M5-34	Horiz. Discharge
C82	270	500		1469-0003		5R5T3		M5-33	Horiz. Discharge
C83	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Horiz. Sweep Coupling
C84	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Horiz. Output Screen
C85	.25	200		P288-25		PJP2S5		2TM-P25	Horiz. Output Cathode
C86	.25	400		P488-25		PTE4P25		4TM-P25	Horiz. Sweep Coupling
C87	.25	400		P488-25		PTE4P25		4TM-P25	Damper Filter
C88	500	20000		HV20C	TV3-502	MM-C20T5			HV Filter
C89	5000			BPD-005	DD-502	TM5D5	5II-005	5HK-D5	Fil. Bypass
C90	.047	600				PJ6847		6TM-S47	Line Filter
C91	30								FM Line Ant. Isolation *
C92	190				TCZ-190		NP0-333-J21		Fixed Trimmer

† Some models use 270MMF in this application
† Some models use 4.7MMF in this application
¶ Some models use .005MFD in this application
* Used in Model 5210 only.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SPARTON PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1	1500Ω	4	PA-4428-1		RTV-6	SVP-994	Focus Control - Wire Wound
R2	5000Ω	2	PA-4411	W-5000	43-5000	VK-135	Vert. Linearity Control - Wire Wound
R3	1000Ω	2	PA-4446	W-1000	43-1000	VK-129	Horiz. Centering Control - Wire Wound
R4	500Ω	4	PA-4448		RTV-25	SVP-985	Width Control - Wire Wound
R5A	25kΩ	½	PA-4443-3	QU-120	AG-40-S	B-26	Contrast Control
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Attach to R5A per instructions
R6A	100 KΩ	½	PA-4445-2	QU-128	AG-49-S	B-40	Brightness Control
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Attach to R6A per instructions
R7A	50KΩ	½	PA-4444-3	QU-123	AG-44-S	B-31	Horiz. Hold Control
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Attach to R7A per instructions
R8A	1Meg	½	PA-4443-3	QU-137	AG-61-S	B-69	Vert. Hold Control
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Attach to R8A per instructions
R9A	2.5Meg	½	PA-4431	QU-239	AG-84-S	AN-83	Vert. Size Control
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Attach to R9A per instructions
R10	1Meg						Tone Control - See Note
R11A	330KΩ	½	PA-4436-3	QU8-132X	AK-89		Volume Control - Tapped @ 60kΩ
B	Shaft		Not Req.	Not Req.	KSS-3		Attach to R11A per instructions
C	Switch		76-1	SWB			Attach to R11A per instructions

Note. Used only in chassis #26SD172C, 26SD172, 26SD172A

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SPARTON PART No.	IRC PART No.	IDENTIFICATION CODES
					ALL RESISTORS ± 10% UNLESS OTHERWISE NOTED
R12	3900Ω			BTS-3900	Antenna Coil Shunt
R13	47kΩ	20%		BTS-47K	AGC Network
R14	10KΩ	20%			RF Coil Shunt
R15	2200Ω	20%		BTS-2200	RF Amp. Decoupling
R16	4700Ω			BTS-4700	Mixer Grid
R17	220KΩ	20%			Mixer Grid
R18	10kΩ	20%			Osc. Grid
R19	4700Ω			BTS-4700	Osc. Plate
R20	100Ω	20%		BTS-100	Decoupling
R21	3600Ω				1st. Video IF Amp. Grid
R22	47Ω	5%			1st. Video IF Amp. Cathode
R23	82Ω	5%		BTS-82 5%	1st. Video IF Amp. Plate
R24	100Ω	20%		BTS-100	1st. Video IF Amp. Decoupling
R25	1000Ω	20%		BTS-1000	AGC Network
R26	33KΩ			BTS-33K	AGC Network
R27	56KΩ			BTS-56K	AGC Network
R28	4700Ω			BTS-4700	Voltage Divider - See Note 4
R29	150KΩ			BTS-150K	AGC Network - See Note 4
R30	1000Ω	20%		BTS-1000	AGC Network
R31	4700Ω	5%		BTS-4700 5%	2nd. Video IF Amp. Grid
R32	1000Ω	5%		BTS-100 5%	2nd. Video IF Amp. Cathode
R33	100Ω	20%		BTS-100	2nd. Video IF Amp. Decoupling
R34	1000Ω	20%		BTS-1000	AGC Network
R35	15KΩ	5%		BTS-15K 5%	AGC Network
R36	27KΩ			BTS-27K	AGC Network
R37	3300Ω	5%		BTS-3300 5%	3rd. Video IF Amp. Grid
R38	100Ω	5%		BTS-100 5%	3rd. Video IF Amp. Cathode
R39	100Ω	20%		BTS-100	3rd. Video IF Amp. Decoupling
R40	4300Ω	5%		BTS-4300 5%	4th. Video IF Amp. Grid
R41	120Ω	20%		BTS-120	4th. Video IF Amp. Cathode
R42	100Ω	20%		BTS-100	4th. Video IF Amp. Plate Decoupling
R43	100Ω	20%		BTS-100	4th. Video IF Amp. Decoupling
R44	22KΩ			BTS-22K	Sync. Clamper Diode Load
R45	330KΩ			BTS-330K	Voltage Divider

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SPARTON PART No.	IRC PART No.	IDENTIFICATION CODES
R46	3900Ω	5%		BTS-3900 5%	Video Det. Diode Load
R47	8600Ω	5%		BTS-6800 5%	Video Peaking Coil Shunt
R48	27KΩ			BTS-27K	Voltage Divider
R49	5600Ω			BTA-5600	Video Output Plate
R50	10KΩ			BTS-10K	Isolation
R51	220KΩ			BTS-220K	Video Peaking
R52	1200Ω	20%		BTS-1200	ACC Anode Load - See Note 1
R53	470KΩ			BTS-470K	Picture Tube Cathode
R54	5100Ω	5%		BTS-5100 5%	Voltage Divider
R55	68KΩ			BTA-68K	Decoupling
R56	47KΩ			BTS-47K	AGC Network
R57	2.2Meg			BTS-2.2Meg	Keyed AGC Grid
R58	100KΩ			BTS-100K	1st. Sound IF Amp. Grid
R59	100KΩ				1st. Sound IF Amp. Grid
R60	82Ω	5%		BTS-82 5%	1st. Sound IF Amp. Cathode
R61	1000Ω	20%		BTS-1000	1st. Sound IF Amp. Decoupling
R62	470KΩ				2nd. Sound IF Amp. Grid
R63	1000Ω	20%		BTS-1000	2nd. Sound IF Amp. Decoupling
R64	150Ω	5%		BTS-150 5%	Balancing
R65	47kΩ			BTS-47K	De-emphasis
R66	10KΩ			BTS-10K	Tone Compensation
R67	4700Ω	5%		BTS-4700 5%	Ratio Det. Diode Load
R68	4700Ω	5%		BTS-4700 5%	Ratio Det. Diode Load
R69	8.8Meg	20%		BTS-8.8Meg	A.F. Amp. Grid
R70	270KΩ			BTS-270K	A.F. Amp. Plate
R71	270KΩ	5%		BTS-270K 5%	Feedback Network
R72	470KΩ	20%		BTS-470K	Output Grid
R73	390Ω			BTA-390	Output Cathode
R74	8000Ω			1.3/4A-2000	Output Decoupling - Wire Wound
R75	180KΩ			BTS-180K	Sync. Separator Cathode
R76	18KΩ			BTS-18K	Sync. Separator Plate
R77	22KΩ			BTS-22K	Sync. Amp. Plate
R78	2.2Meg	20%		BTS-2.2Meg	Sync. Amp. Grid
R79	4.7Meg	5%		BTS-4.7Meg 5%	Sync. Phase Inv. Grid
R80	3300Ω	5%		BTS-3300 5%	Sync. Phase Inv. Plate
R81	3300Ω	5%		BTS-3300 5%	Sync. Phase Inv. Cathode
R82	15KΩ			BTS-15K	Integrator Network
R83	8200Ω			BTS-8200	Integrator Network
R84	8200Ω			BTS-8200	Integrator Network
R85	1.1Meg	5%		BTS-1.1Meg 5%	Vert. Osc. Grid
R86	100KΩ			BTS 100K	Vert. Osc. Plate
R87	100KΩ			BTS-100K	Transformer Shunt
R88	100KΩ			BTS-100K	Voltage Divider
R89	9.8Meg			BTS-9.8Meg	Voltage Divider
R90	8200Ω			BTS-8200	Vert. Peaking
R91	82KΩ			BTA-22K	Decoupling
R92	20KΩ	2		BTB-10K	Decoupling
R93	2.2Meg	20%		BTS-2.2Meg	Vert. Output Grid
R94	1000			BTA-1000	Vert. Output Cathode
R95	100KΩ			BTS-100K	Horiz. Phase Det. Diode Load
R96	100KΩ			BTS-100K	Horiz. Phase Det. Diode Load
R97	4.7Meg	20%		BTS-4.7Meg	Horiz. Phase Det. Diode Load
R98	22KΩ			BTA-22K	Horiz. Feedback
R99	470KΩ			BTS-470K	Horiz. AFC Filter
R100	5600Ω			BTS-5600	Horiz. MV Plate
R101	200KΩ	5%		BTS-200K 5%	Horiz. MV Plate
R102	100KΩ			BTS-100K	Horiz. MV Grid
R103	1500Ω	5%		BTS-1500 5%	Horiz. MV Cathode
R104	10KΩ			BTS-10K	Horiz. Phasing
R105	470KΩ			BTS-470K	Horiz. Output Grid
R106	100Ω	2			Horiz. Output Cathode
R107	1000Ω	2		BTB-1000	Width Control Shunt
R108	100Ω	20%			Parasitic Suppressor
R109	100Ω	20%			Parasitic Suppressor
R110	100Ω	20%			Parasitic Suppressor
R111	100Ω	20%			Parasitic Suppressor
R112	33KΩ	20%	2	BTB-33K	Horiz. Output Screen
R113	39KΩ		2	BTB-39K	Horiz. Output Screen
R114	10KΩ		2	BTB-10K	Decoupling
R115	3900Ω		1	BTA-3900	Decoupling
R116	3.3Ω				HV Rectifier Filament - Wire Wound
R117	1Meg	20%	1		HV Filter
R118	280Ω		5	2 5/4A-300	Focus Coil Shunt - Wire Wound - See Note 2
R119	560Ω		2	BTB-560	Focus Coil Shunt - See Note 3

Note 1. Some Models use a 1000Ω Resistor in this application
Note 2. Model #5210 uses a 560Ω Resistor in this application
Note 3. Used only in Model #5210
Note 4. Used only in Chassis Type #26SD172C

SPEAKER

ITEM No.	RATINGS: FIELD RES.	RATINGS: V. C. IMP.	REPLACEMENT DATA: SPARTON PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1A	P.M.	3.4Ω	PC-83000-33B	ST-105 Mod. P5-X	5AI	
	CONE DIA.	V. C. DIA.				
SP1B	5"	9/16"				

TRANSFORMER (POWER)

ITEM No.	RATING: PRI	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	SPARTON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC	750VCT	380VCT	5VAC		P-8157①	P-3067 ①	
	② 1.35A	.180ADC	.125ADC	②2A				
T2	117VAC	6.3VAC	6.3VAC	6.3VAC				
	② .85A	② 5A	②5A	②1.2A				
				SEC 1				
				5VAC				
				②3A				

① Add series resistor to reduce plate voltage from low voltage rectifier.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA SPARTON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T3	150Ω	8.20Ω	AB47006-4	A-8111	A-3000	TB0-3 ②	Vert. Oscillator Trans.
T4	220Ω	4.8Ω	PC-70010-6				Hor. Output Trans.
	Tapped ⓐ 30Ω	Tapped ⓐ .7Ω					
		SEC 2					
		3Ω					
		SEC 3					
		0Ω					
T5	690Ω	6.5Ω		A-8115	A-3035	TS0-1	Vert. Output Trans.
T6A	13Ω		PC-70009-C	DY-8	MDF-70		Hor. Deflection Coils
B	63Ω						Vert. Deflection Coils
T7	425Ω		PC-70008-C				Focus Coil

② Drill new mounting holes

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA SPARTON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T8	6.4KΩ	3.4Ω	270Ω	.4Ω	AB44066-3	A-3823	A-3020	R0-303	

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA SPARTON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
L1	.180ADC	110Ω	6 Hy.	AB47009-1	C-2325 ②	C-2994	TR-4200②	② Drill one new
L2	.125ADC	110Ω	6 Hy.	AB47009-1	C-2325 ②	C-2994	TR-4200②	mounting hole.

COILS (RF-IF)

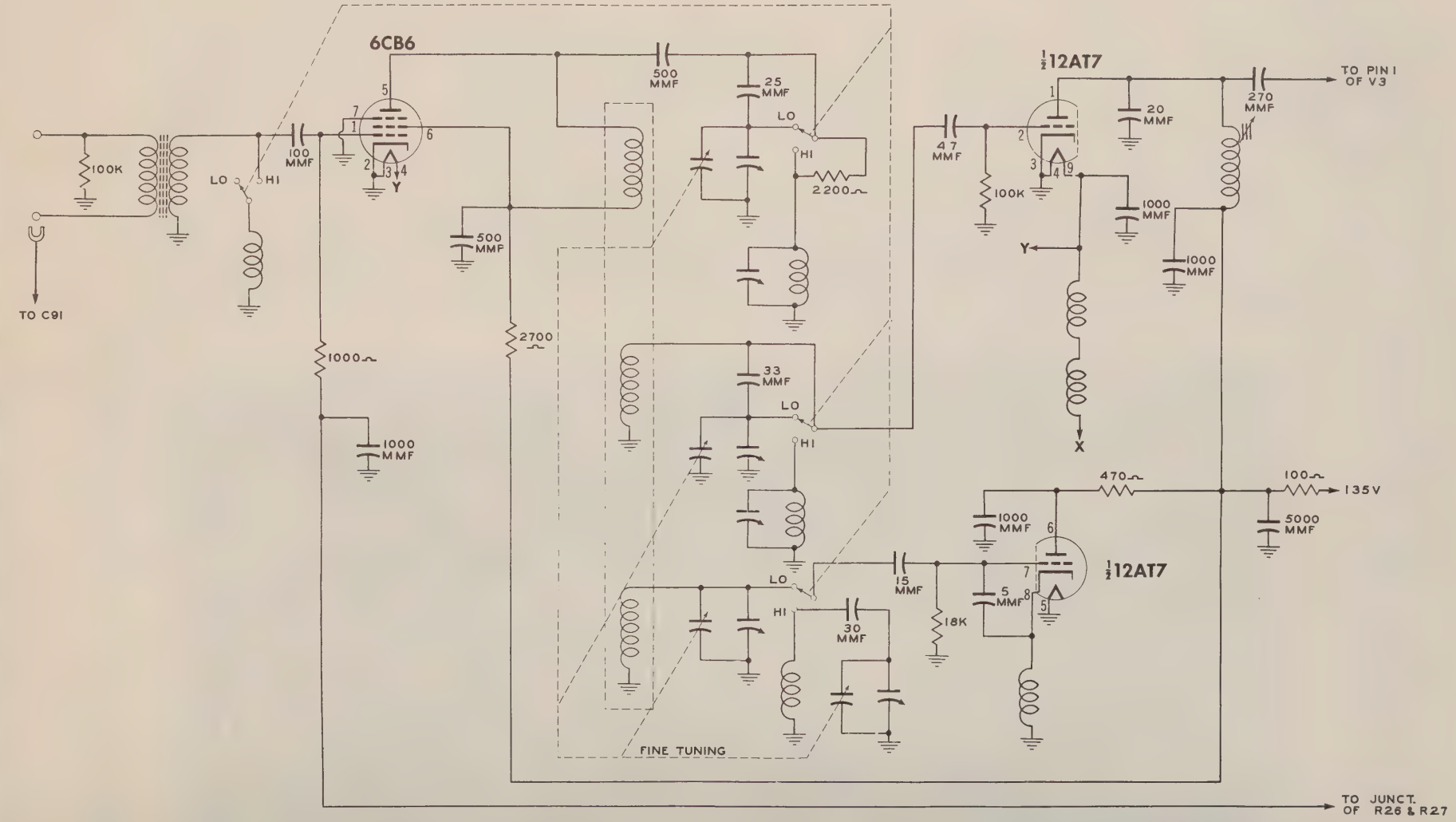
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA SPARTON PART No.	REPLACEMENT DATA MERIT PART No.	NOTES
L3	Ant. Coils	0Ω				
L4	Fil. Choke	0Ω				
L5	RF, Mixer Grid & Osc. Coils	0Ω				
L6	Fil. Choke	0Ω				
L7	RF Choke	3Ω				
L8	1st Video IF	.8Ω				
L9	Fil. Choke	0Ω				
L10	21.75MC Trap	0Ω				
L11	Fil. Choke	.1Ω				
L12	2nd. Video IF	.1Ω				
L13	Fil. Choke	.1Ω				
L14	3rd. Video IF	.1Ω				
L15	Fil. Choke	.1Ω				
L16	4th. Video IF	.1Ω				
L17	RF Choke	2.6Ω				
L18	Fil. Choke	.1Ω				
L19	5th. Video IF	.5Ω		6364-1		
L20	RF Choke	2.6Ω				
L21	Fil. Choke	.1Ω				
L22	Peaking Coil	7.5Ω				146 Microhenries, Wound on 4.7KΩ Resistor
L23	Peaking Coil	17.5Ω				600 Microhenries
L24	Peaking Coil	9.5Ω				213 Microhenries, Wound on 6.8KΩ Resistor
L25	4.5MC Trap	1.8Ω				
L26	Peaking Coil	14Ω				420Microhenries
L27	1st. Sound IF	1.6Ω		6364-2		
L28	2nd. Sound IF	2.2Ω	2.2Ω	6667-5		
L29	Ratio Det	4.8Ω	1Ω	6684-4		Tap ⓐ 1.1Ω
L30	Horiz. Osc.	58Ω				
L31	Ant. Choke					Not used in all models

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA SPARTON PART No. FUSE	SPARTON PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG Pigtail	3/8A. 250V.	PA4212-3		318.375		GJV 3/8A.	
M2	Pigtail	1/16A. 250V.	PA4212-4		360062		GLV1/16	

MISCELLANEOUS

ITEM No.	PART NAME	SPARTON PART No.	NOTES
M3	RF Tuner	PD-93157	
M4	Ion Trap		
B2	Trimmer	PA-4368	Horiz. Drive (20-270MMF)



ALTERNATE TUNER SCHEMATIC MODEL 5210 ONLY

PHOTOFACT* Folder

*TRADE MARK

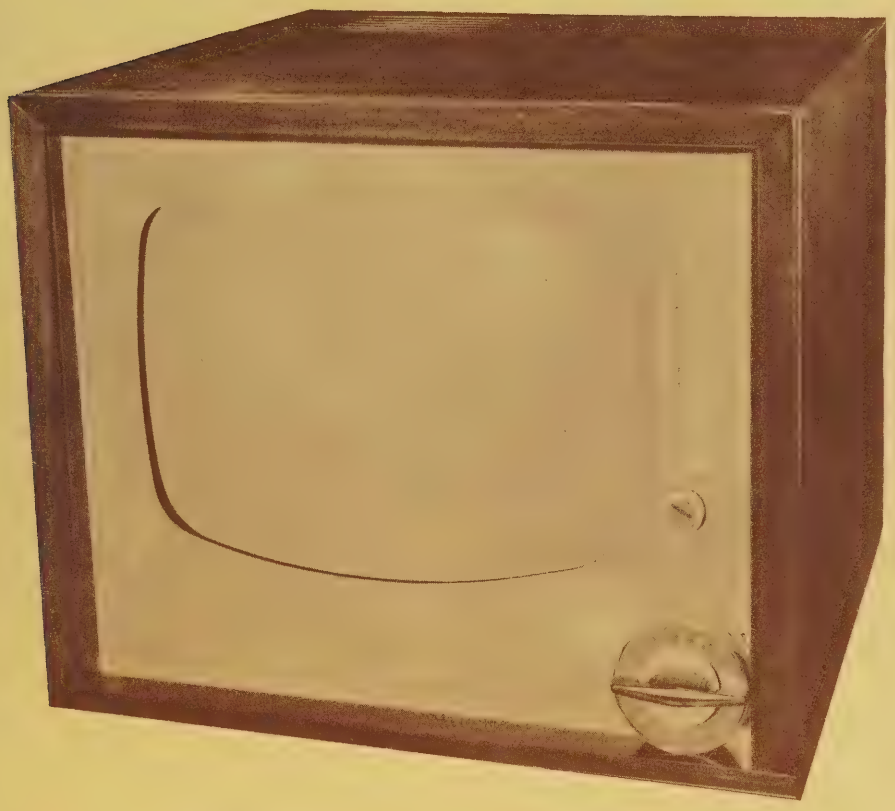
WESTINGHOUSE MODELS H-667T17, H-668T17, H-678K17, H-679K17 (Ch. V-2216-1)

PROPERTY OF
L. F. BLANKENSHIP
3944 MEADE ST.
DENVER, COLORADO

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



MODEL H-667T17

WESTINGHOUSE MODELS
H-667T17, H-668T17, H-678K17, H-679K17 (Ch. V-2216-1)

HOWARD W. SAMS & CO., INC. • Indianapolis, Indiana

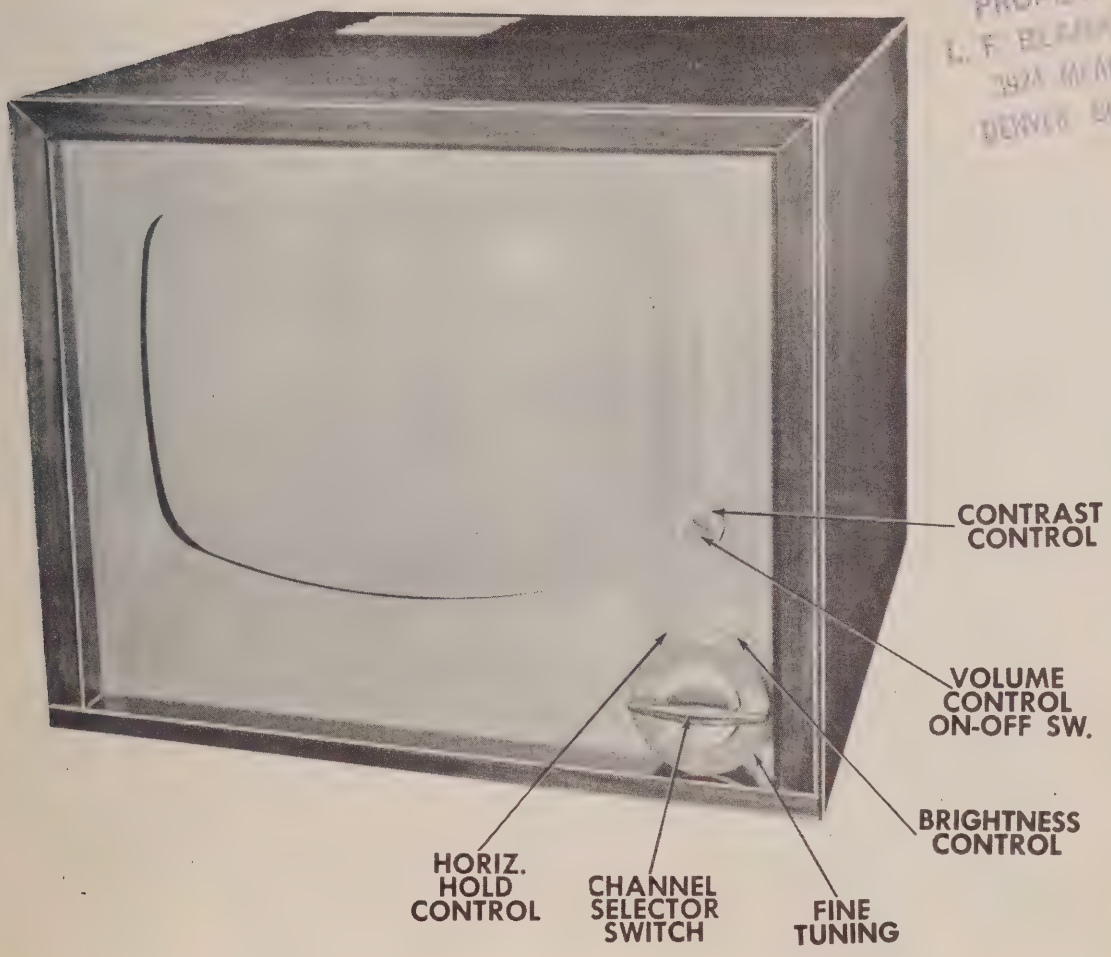
"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 5-52 SET 167 FOLDER 15

PHOTOFACT* Folder

WESTINGHOUSE MODELS H-667T17, H-668T17, H-678K17, H-679K17 (Ch. V-2216-1)

PROPERTY OF
L. F. ELEKTRONSHIP
3924 MIAMI ST.
DENVER, COLORADO



WESTINGHOUSE MODELS
H-667T17, H-668T17, H-678K17, H-679K17 (Ch. V-2216-1)

Westinghouse Model H-667T17

TRADE NAME	Westinghouse Models H-667T17, H-668T17, H-678K17, H-679K17 (Ch. V-2216-1)
MANUFACTURER	Westinghouse Electric Corp., Television - Radio Div., Sunbury, Pa.
TYPE SET	Television Receiver
TUBES	Twenty-Two

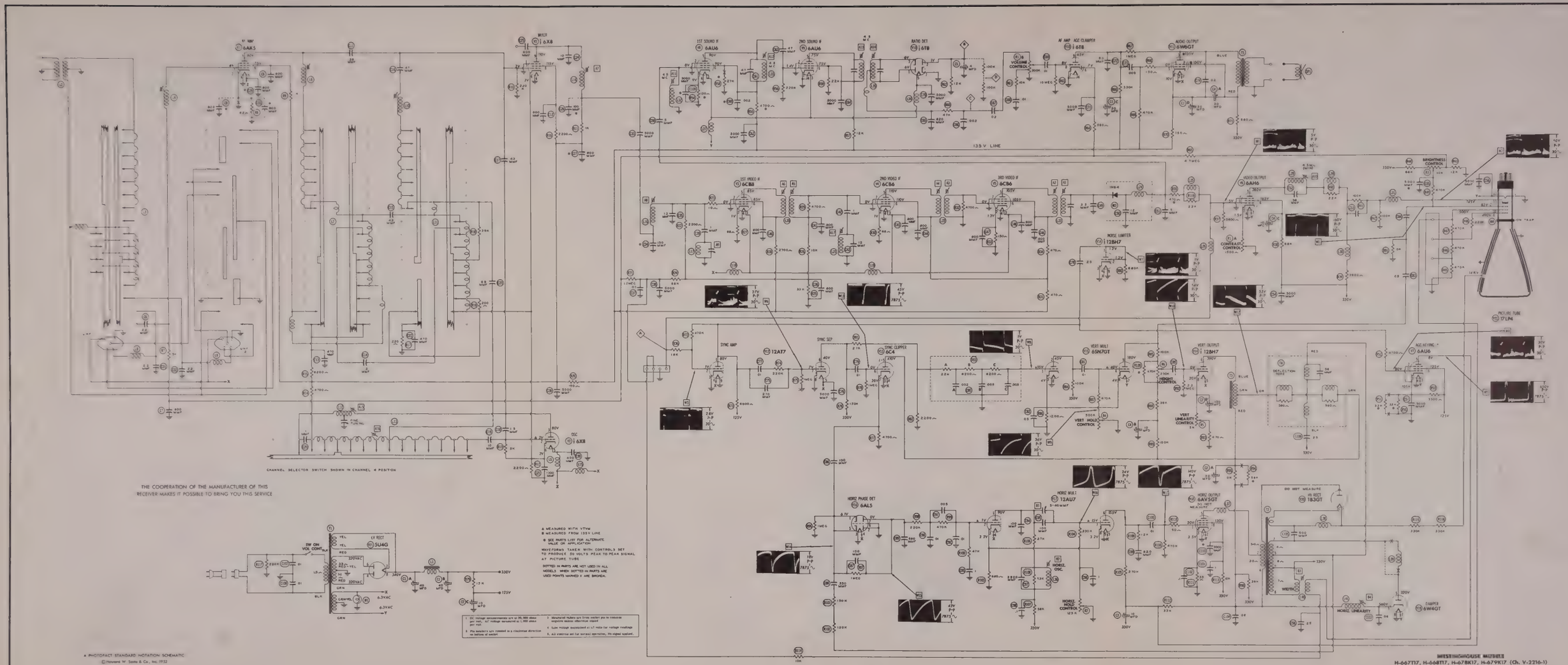
POWER SUPPLY 110-120 Volts AC-60 cycles RATING 1.8Amp. @117 Volts AC
TUNING RANGE—Channels 2 thru 13

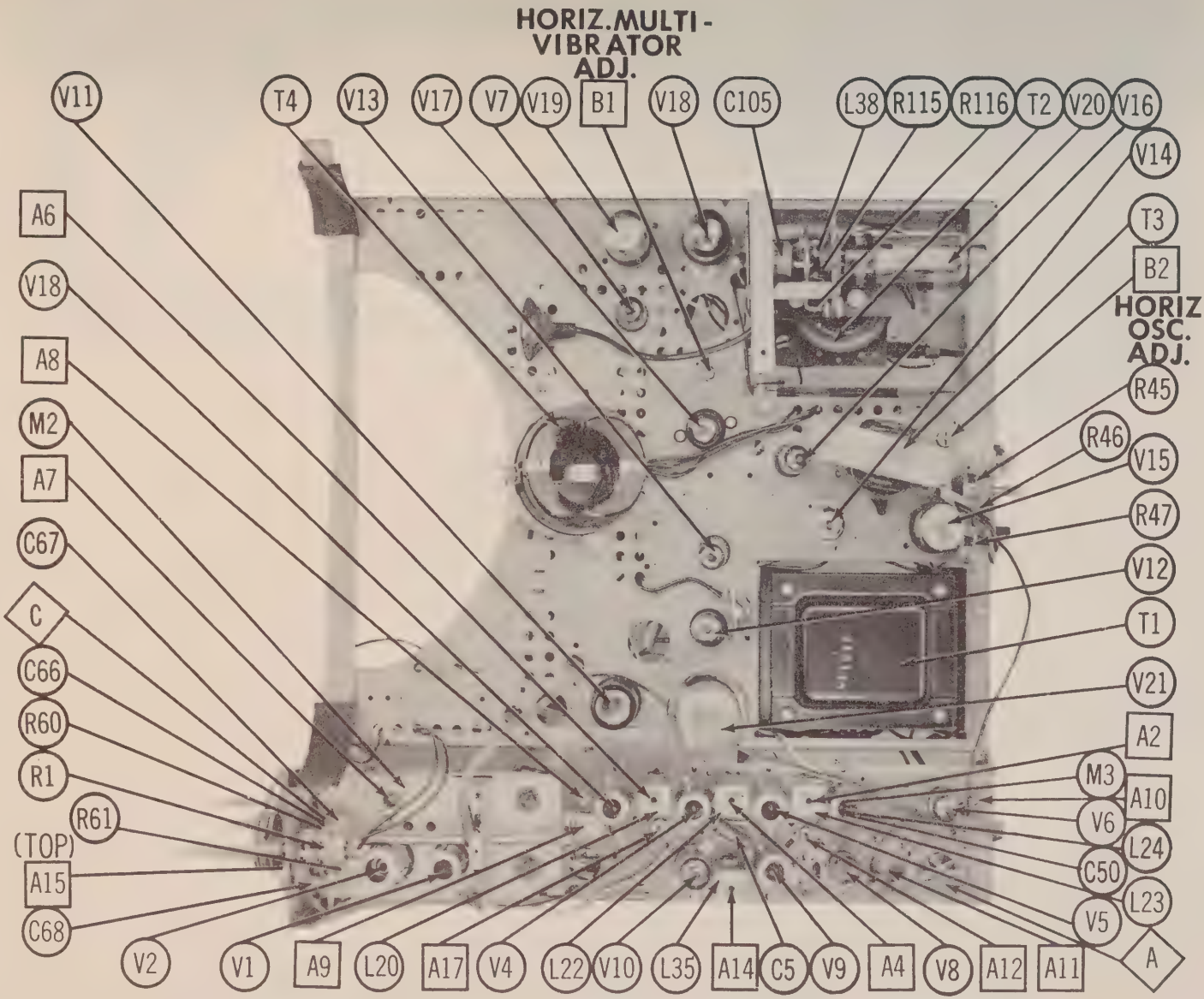
INDEX

Alignment Instructions 6, 7
Drive Cord Stringing 14
Disassembly Instructions 10
Horizontal Sweep Circuit Adjustments 10
Parts List and Descriptions 11, 12, 13, 14
Photographs
Cabinet - Rear View 10
Capacitor & Alignment Identification 4, 9
Photos (Cont.)
Chassis - Top View 3
RF Tuner 8
Resistor & Inductor Identification 15, 16
Resistance Measurements 8
Schematic 2
Tube Placement Charts 5

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

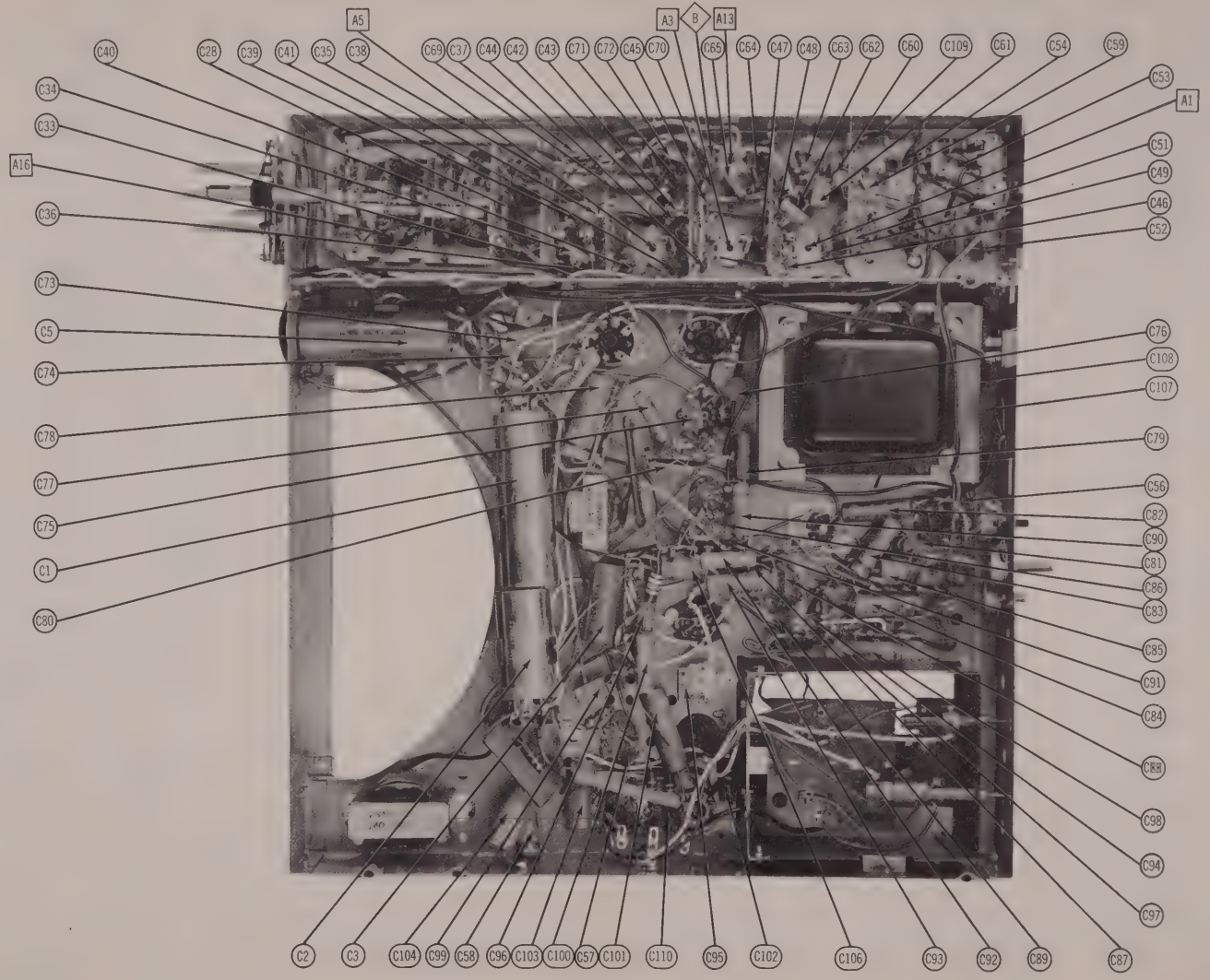
"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America


RF AMP 6AK5
MIXER 6X8
1ST SOUND IF 6AU6
2ND SOUND IF 6AU6
RATIO DET 6T8
AF AMP AGC CLAMPER 6T8
AUDIO OUTPUT 6W6GT
VOLUME CONTROL
135 V LINE
1ST VIDEO IF 6CB6
2ND VIDEO IF 6CB6
3RD VIDEO IF 6CB6
1N64
VIDEO LIMITER 12BH7
VIDEO OUTPUT 6AH6
BRIGHTNESS CONTROL
CONTRAST CONTROL
PICTURE TUBE 17LP4
SYNC AMP 12AT7
SYNC SEP
SYNC CLIPPER 6C4
VERT MULT 6SN7GT
VERT OUTPUT 12BH7
HEIGHT CONTROL
VERT HOLD CONTROL
VERT LINEARITY CONTROL
AGC ASYNC 6AU6
DEFLECTION YOKE
HORIZ PHASE DET 6AL5
HORIZ MULT 12AU7
HORIZ OUTPUT 6AV5GT
DO NOT MEASURE
HORIZ OSC.
HORIZ HOLD CONTROL
HORIZ LINEARITY
DAMPER 6W4GT
OSC 6X8
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 4 POSITION
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
SW ON VOL CONT
LV RECT 5U4G
6.3VAC
330V
125V
A MEASURED WITH VTVM
B MEASURED FROM 135V LINE
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 80 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
©Howard W. Sams & Co., Inc. 1952
WESTINGHOUSE MODELS
H-667T17, H-668T17, H-678K17, H-679K17 (Ch. V-2216-1)

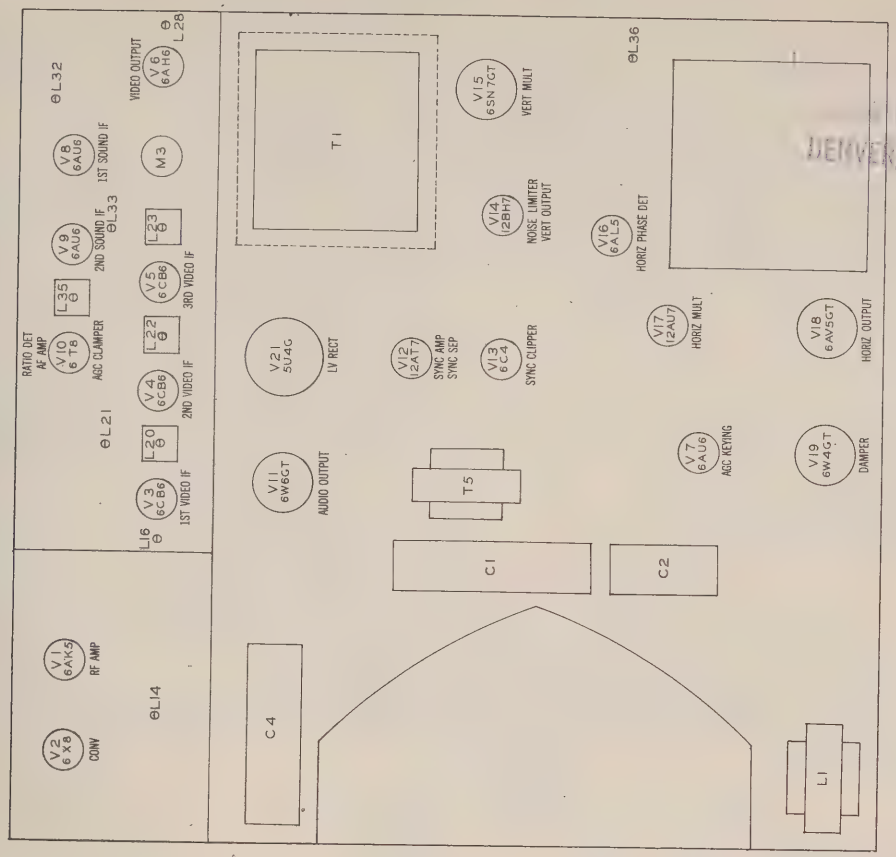


CHASSIS TOP VIEW

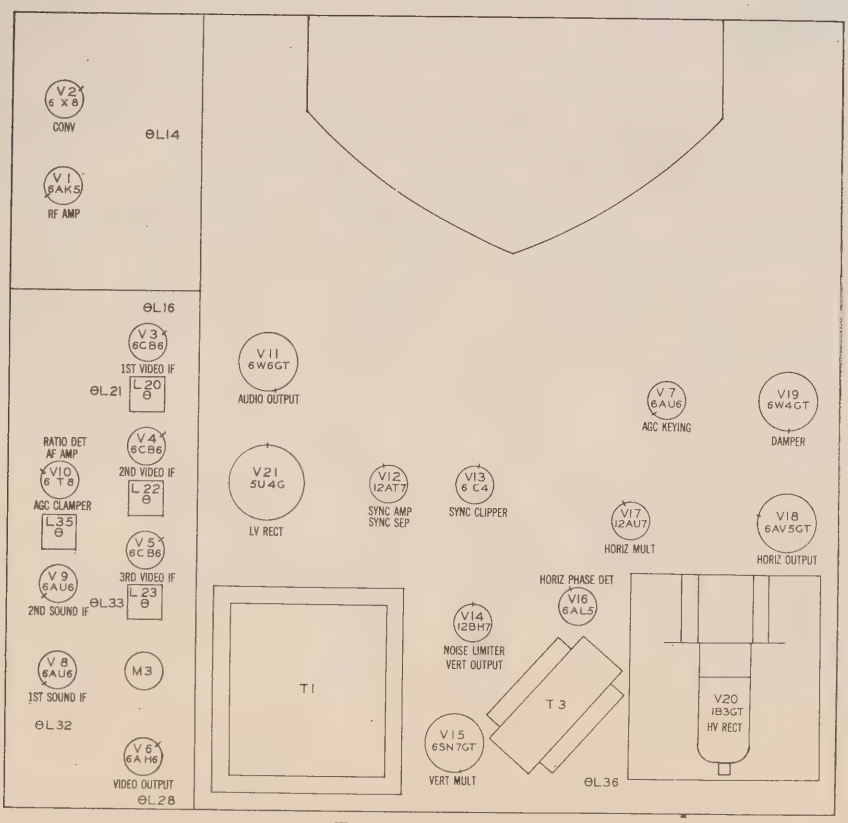
PROPERTY OF
L. F. BLANKENSHIP
[illegible] ST.
[illegible], COLORADO



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



BOTTOM VIEW



TOP VIEW

TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The end of the high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the RF amp. tube, (V1), from its socket and turn the channel switch to 13.
Connect the negative lead of a 9 volt battery to the ungrounded lead of C37, connect the positive lead to chassis.
During steps 1 and 2 it is necessary to detune the primary of the transformer feeding the grid to which the sweep generator is connected.
The transformer may be detuned byclipping an alligator clip to Pin 5 of the preceeding tube. CAUTION B+.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.001MFD	High side to Pin 1, (grid) of 6CB6, (V5). Low side to chassis.	44MC (10MC swp.)	42.25MC 43MC 45MC 45.75MC	13	Vert. amp. to Point (A). Low side to chassis.	A1, A2	Adjust for response curve similar to Fig. 1.
2.	"	High side to Pin 1, (grid) of 6CB6, (V4). Low side to chassis.	"	"	"	"	A3, A4	Adjust for response curve similar to Fig. 2.
3.	"	High side to Pin 1, (grid) of 6CB6, (V3). Low side to chassis.	"	"	"	"	A5, A6	Adjust for response curve similar to Fig. 3.
4.	Direct	High side to an ungrounded tube shield floating over mixer tube, (V2). Low side to chassis.	"	"	"	"	A7, A8	Detune A9 fully clockwise. Adjust A7 & A8 for response curve similar to Fig. 4.
5.	"	"	"	41.25MC	"	"	A9	Adjust for MINIMUM marker indication at the 41.25MC point on response curve.
6.	"	"	"	42.25MC 43MC 45MC 45.75MC	"	"		Check for response curve similar to Fig. 4. If necessary retouch A7 & A8 for proper response.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	.001MFD	High side to Pin 1, (grid) of 6AH6, (V6). Low side to chassis.	4.5MC (unmod.)	13	DC probe thru detector, (Fig. 5), to pin 10, (cathode) of picture tube. Common to chassis.	A10	Adjust for MINIMUM deflection.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (±1%) resistors in series from Point (B) to chassis. The junction of these two resistors is alignment Point (D) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	.001MFD	High side to Point (A). Low side to chassis.	4.5MC (unmod.)	13	DC probe to Point B. Common to chassis.	A11, A12, A13	Adjust for maximum deflection.
9.	"	"	"	"	DC probe to Point C. Common to Point D.	A14	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	.001MFD	High side to Point (A). Low side to chassis.	4.5MC (450KC swp)	4.5MC	13	Vert. amp. to Point (B). Low side to chassis.	A11, A12 A13	Disconnect stabilizor capacitor C5. Adjust for maximum amplitude and symmetry as per Fig. 6.
9.	"	"	"	"	"	Vert. amp. to Point (C). Low side to chassis.	A14	Reconnect Capacitor C5. Ajust A14 so 4.5MC occurs at center of crossover lines as per Fig. 7. SLIGHTLY retouch A13 for maximum amplitude and straightness of crossover lines.

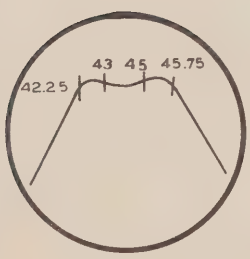


FIG.1

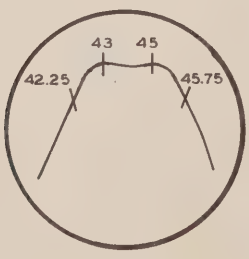


FIG.2

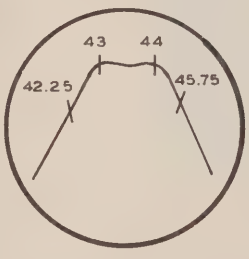


FIG.3

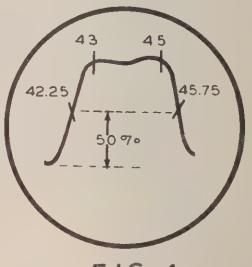


FIG.4

ALIGNMENT INSTRUCTIONS (CONT.)

OSCILLATOR ALIGNMENT

Replace the RF amp. tube, (V1) in its socket.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC swp.)	211.25MC 215.75MC	13	Vert. amp. to Point (A) Low side to chassis.	A15	Adjust to place sound marker as shown in Fig. 8. The video marker should be at 50%
11.	"	"	207MC (10MC swp.)	205.25MC 209.75MC	12	"		Check all high band channels to see that the markers can be properly placed well within the range of the fine tuning control. If not, make compromise adjustment of A16.
			201MC (10MC swp.)	199.25MC 203.75MC	11			
			195MC (10MC swp.)	193.25MC 197.75MC	10			
			189MC (10MC swp.)	187.25MC 191.75MC	9			
			183MC (10MC swp.)	181.25MC 185.75MC	8			
			177MC (10MC swp.)	175.25MC 179.75MC	7			
12.	"	"	85MC (10MC swp.)	83.25MC 87.75MC	6	"	A16	Adjust to place sound marker as shown in Fig. 8.
13.	"	"	79MC (10MC swp.)	77.25MC 81.85MC	5			Check all low band channels to see that the markers can be properly placed well within the range of the fine tuning control. If not, make compromise adjustment of A17.
			69MC (10MC swp.)	67.25MC 71.75MC	4			
			63MC (10MC swp.)	61.25MC 65.75MC	3			
			57MC (10MC swp.)	55.25MC 59.75MC	2			

The RF & Mixer portion of this receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

ADJACENT CHANNEL TRAP ADJUSTMENT

The adjacent channel trap A17 should not require adjustment unless adjacent channel interference is noted. In that event the trap should be adjusted for minimum at 47.25MC, otherwise turn the core of the trap fully out, (counter-clockwise).

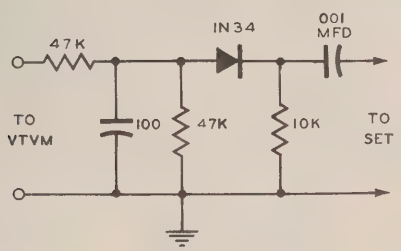


FIG. 5

FIG. 6

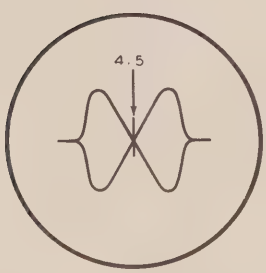


FIG. 7

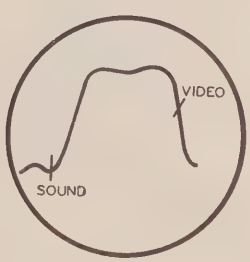


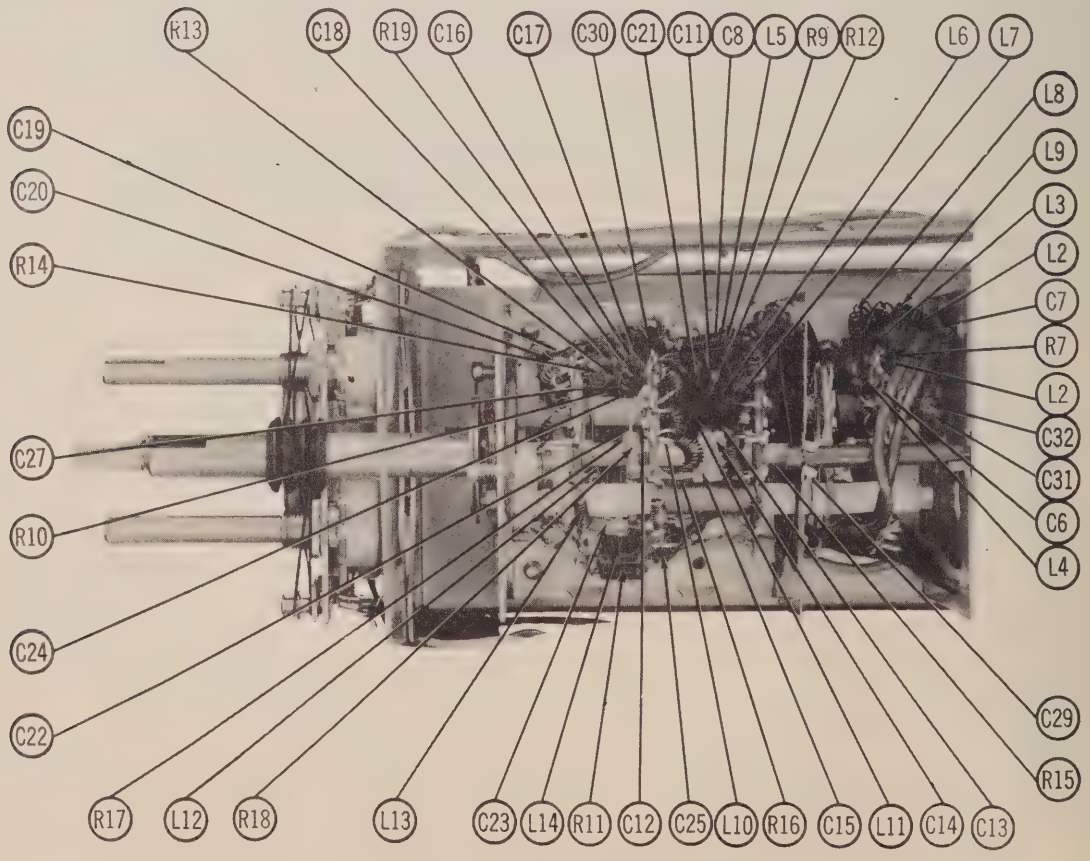
FIG. 8

RESISTANCE MEASUREMENTS

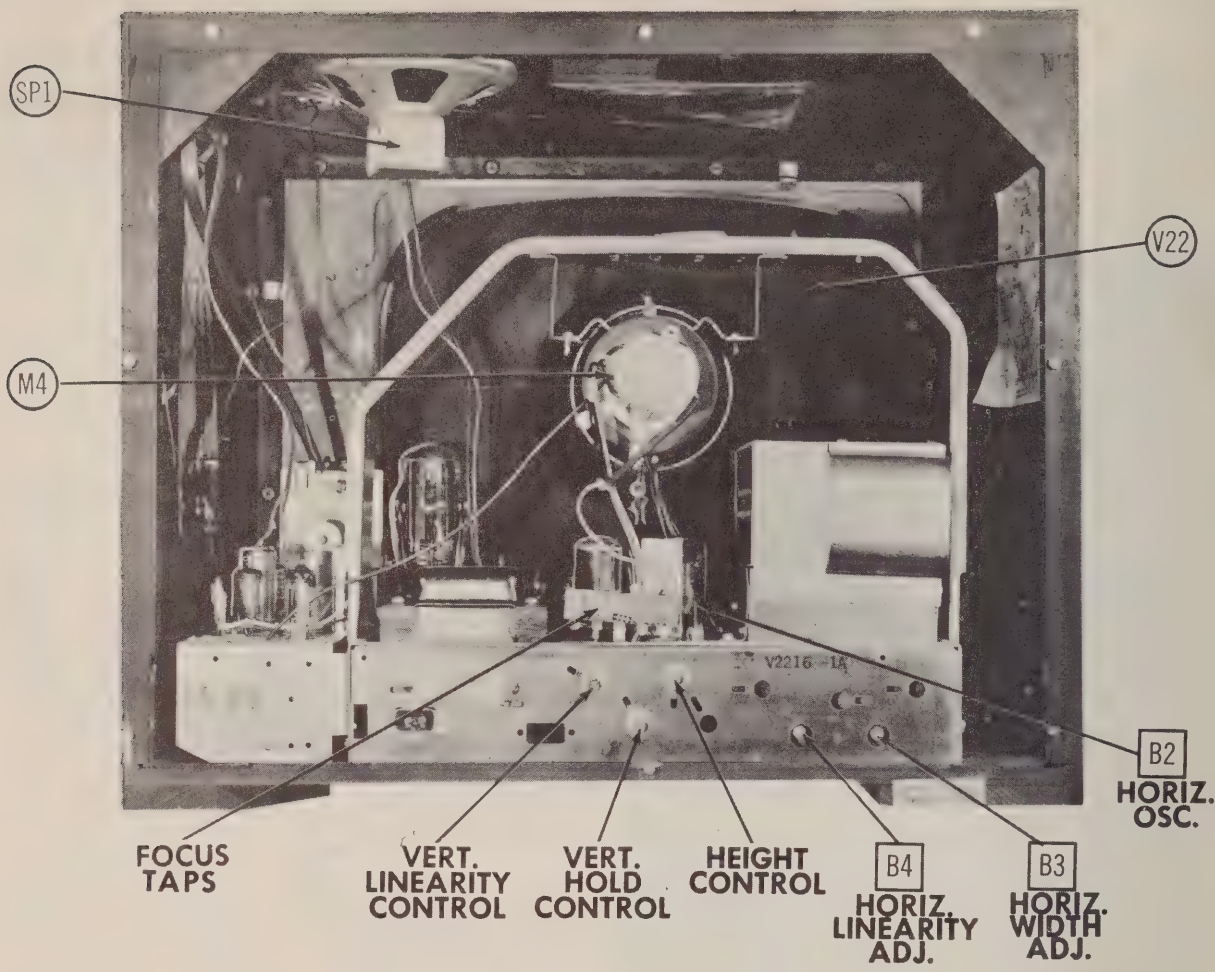
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AK5	1.2Meg	0Ω	.1Ω	0Ω	■8.3KΩ	■9.3KΩ	0Ω		
V 2	6X8	0Ω	16KΩ	■4.8KΩ	0Ω	.1Ω	180Ω	220KΩ	■2.3KΩ	■1.1KΩ
V 3	6CB6	35KΩ	68Ω	.1Ω	0Ω	■2.7KΩ	■2.7KΩ	0Ω		
V 4	6CB6	43KΩ	68Ω	.1Ω	0Ω	■470Ω	■470Ω	0Ω		
V 5	6CB6	.5Ω	150Ω	.1Ω	0Ω	■940Ω	■940Ω	0Ω		
V 6	6AH6	5.6KΩ	0Ω	.1Ω	0Ω	†3.9KΩ	†68KΩ	80Ω		
V 7	6AU6	†27KΩ	13KΩ	.1Ω	0Ω	110KΩ	†10KΩ	13KΩ		
V 8	6AU6	4.4Ω	0Ω	.1Ω	0Ω	■4.7KΩ	■4.7KΩ	150Ω		
V 9	6AU6	220KΩ	0Ω	.1Ω	0Ω	■9KΩ	■9KΩ	0Ω		
V 10	6T8	INF	12KΩ	INF	0Ω	.1Ω	1.2Meg	0Ω	10Meg	■260KΩ
V 11	6W6GT	INF	0Ω	†940Ω	†720Ω	■470KΩ	■470KΩ	.1Ω	15KΩ	
V 12	12AT7	†22KΩ	3KΩ	0Ω	.1Ω	.1Ω	29KΩ	1Meg	0Ω	0Ω
V 13	6C4	#8KΩ	INF	0Ω	.1Ω	#8KΩ	1Meg	4.7KΩ		
V 14	12BH7	680KΩ	680KΩ	0Ω	.1Ω	.1Ω	#9KΩ	2.2Meg	2.8KΩ	0Ω
V 15	6SN7GT	40KΩ	†100KΩ	1.2KΩ	700KΩ	#500KΩ	1.2KΩ	.1Ω	0Ω	
V 16	6AL5	1Meg	0Ω	0Ω	.1Ω	1Meg	0Ω	2Meg		
V 17	12AU7	†83KΩ	2.7Meg	680Ω	.1Ω	.1Ω	#300KΩ	400KΩ	680Ω	0Ω
V 18	6AV5GT	470KΩ	.1Ω	33Ω	INF	#50Ω	INF	0Ω	†10KΩ	
V 19	6W4GT	INF	INF	50KΩ	INF	†52Ω	INF	.1Ω	0Ω	
V 20	1B3GT	PINS 1 THROUGH 8 HAVE INF RESISTANCE								TOP CAP #550Ω
V 21	5U4G	INF	20KΩ	INF	30Ω	INF	33Ω	INF	20KΩ	
V 22	17LP4	0Ω	500KΩ	PIN 6 #250KΩ	PIN 10 †33KΩ	PIN 11 50KΩ	PIN 12 .1Ω Ω			

ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PIN 8 OF V21
■ MEASURED FROM 135 VDC LINE
MEASURED FROM PIN 3 OF V19



RF TUNER



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Connect a short across L36.

Connect a VTVM between Pin 2 of V17 and chassis.

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to the mid-position of its range.

Adjust the horizontal multivibrator trimmer, (B1) until the VTVM reads zero voltage.

If zero voltage can be approached but not reached, turn the hold control slightly to one side of mid position to obtain zero reading.

Remove the short from L36.

Adjust the horizontal oscillator coil slug, (B2) until zero voltage is again read on the VTVM.

Adjust the width coil slug (B3) until the picture is slightly wider than necessary to fill the mask horizontally.

Adjust the horizontal linearity coil slug (B4) until the picture is symmetrical from left to right.

DISASSEMBLY INSTRUCTIONS

1. Remove 6 push on Type Control Knobs from Front Panel.
2. Remove 7 wood screws. Remove back cover.
3. Disconnect Speaker
4. Remove 2 nuts holding Speaker. Remove Speaker
5. Remove Clamp on rear side of cabinet to release Antenna lead.
6. Remove 4 Chassis Bolts. Remove Chassis.

Note: For Picture Tube Removal it is necessary to remove chassis as outlined above.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Westinghouse PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6AK6	6AK6	7BK	
V2	Converter	6X8	6X8	9AK	
V3	1st. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Output	6AH6	6AH6	7BK	
V7	Keyed AGC	6AU6	6AU6	7BK	
V8	1st. Sound IF Amp.	6AU6	6AU6	7BK	
V9	2nd. Sound IF Amp.	6AU6	6AU6	7BK	
V10	Ratio Detector - AF Amplifier - AGC Clamper	6T8	6T8	9E	
V11	Audio Output	6W6GT	6W6GT	7AC	
V12	Sync. Amplifier - Sync. Seperator	12AT7	12AT7	9A	
V13	Sync. Clipper	6C4	6C4	6BG	
V14	Noise Limiter - Vert. Output	12BH7	12BH7	9A	
V15	Vert. Mult.	6SN7GT	6SN7GT	8BD	
V16	Horiz. Phase Det.	6AL5	6AL5	6BT	
V17	Horiz. Mult.	12AU7	12AU7	9A	
V18A	Horiz. Output	6AV5GT	6AV5GT	6CK	
B	Horiz. Output	6AU5GT	6AU5GT	6CK	
V19	Damper	6W4GT	6W4GT	4CG	
V20	HV Rectifier	1B3GT	1B3GT	3C	
V21	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: Westinghouse PART No.	REPLACEMENT DATA: SYLVANIA PART No.	RTMA BASE TYPE	NOTES
V22A	17LP4	17LP4	12C	
B	17VP4	17VP4	12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: WESTINGHOUSE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450	V-9891	AFH 4-93		UPT4445--3335		TVL-4720	▪ Filter
B	40	450							■ Filter
C	30	350							▲ Decoupling
D	30	350							Audio Output Cathode
C2A	30	450	V-10306-1	AFH 3-140		UPT4145-V10		TVL-3753	▲ Vert. Output Dec.
B	150	50		PRS50/50					▲ Vert. Output Cathode
C	10	450							■ Decoupling
C3	10	450	V-10293-1	PRS500/10		BR1045A		TVA-1705	Decoupling
C4A	30	450	V-10786-1	PRS500/10		EZ588		TVA-2722	Audio Output Dec. (Red)
B	10	450		PRS500/10		EZ3045		TVA-1711	Decoupling (Blue)
C	10	450		PRS450/30					Video Output Screen (Green)
C5	4	50	V-4637	PRS150/4		BR550		TVA-1303	Stabilizing
C6	22				TCZ-22		NP0K-220	5TCC-Q22	RF Coupling
C7	800		V-9863-1	BPD-0008	DD-801	TM5T8	801-001	5HK-D1	AGC Filter
C8	800		V-9863-1	BPD-0008	DD-801	TM5T8	801-001	5HK-D1	RF Amp. Screen
C9	800		V-9863-1	BPD-0008	DD-801	TM5T8	801-001	5HK-D1	RF Amp. Cathode *
C10	800		V-9863-1	BPD-0008	DD-801	TM5T8	801-001	5HK-D1	RF Amp. Cathode *
C11	.36						NP0K-R36		RF Coupling
C12	800		V-9863-1	BPD-0008	DD-801	TM5T8	801-001	5HK-D1	Mixer Screen Bypass
C13	470			SI470	D6-471		GP2K-471	5GA-T47	RF Bypass
C14	1.2						NP0K-1R2		RF Coupling
C15	.43						NP0K-R43		RF Coupling
C16	47				TCZ-47		NP0L-470	5TCC-Q47	RF Coupling
C17	.43						NP0K-R43		Osc. Coupling
C18	1.5						N330K-1R5		Osc. Feedback
C19	10			SI10N750	TCN-10		N750K-100	5TCU-Q1	Osc. Grid Cap.
C20	1				TCZ-1		NP0K-010		Fixed Trimmer
C21	1000			BPD-001	DD-102	TM5D1	801-001	5HK-D1	Conv. Cathode
C22	470			SI470	D6-471		GP2K-471	5GA-T47	Conv. Cathode
C23	.68				TCZ-.68		NP0K-R68		Osc. Coupling
C24	10			SI10NP0	TCZ-10		NP0K-100	5TCC-Q1	Fixed Trimmer
C25	800		V-9863-1	BPD-0008	DD-801	TM5T8	801-001	5HK-D1	IF Coupling (Test)
C26	100			SI100NP0	TCZ-100		NP0-333-101		Fixed Trimmer *
C27	800		V-9863-1	BPD-0008	DD-801	TM5T8	801-001	5HK-D1	RF Bypass †
C28	5000		V-5596	BPD-005	DD-502	TM5D5	811-005	5HK-D5	RF Bypass
C29	800		V-9863-1	BPD-0008	DD-801	TM5T8	801-001	5HK-D1	RF Amp. Fil. Bypass *
C30	800		V-9863-1	BPD-0008	DD-801	TM5T8	801-001	5HK-D1	Conv. Fil. Bypass
C31	22				TCZ-22		NP0K-220	5TCC-Q22	Voltage Divider
C32	22				TCZ-22		NP0K-220	5TCC-Q22	Voltage Divider
C33	5000		V-5596	BPD-005	DD-502	TM5D5	811-005	5HK-D5	IF Coupling
C34	150	500		1468-00015	D6-151	5W5T15	GP2K-151	1FM-315	Voltage Divider ¶
C35	12		R3CC20SL120K	SI12	D6-120		GP1K-120		Fixed Trimmer
C36	800		V-9863-1	BPD-0008	DD-801	TM5T8	801-001	5HK-D1	AGC Filter
C37	.03	400	RCP10W4303M	P488-03		PTE6S3		6TM-S3	AGC Filter
C38	5000		V-5596	BPD-005	DD-502	TM5D5	811-005	5HK-D5	AGC Filter
C39	1		V-5658-1		TCZ-1		NP0K-010		IF Coupling
C40	800		V-9863-1	BPD-0008	DD-801	TM5T8	801-001	5HK-D1	1st. Video IF Dec.
C41	800		V-9863-1	BPD-0008	DD-801	TM5T8	801-001	5HK-D1	AGC Filter
C42	1		V-5658-1		TCZ-1		NP0K-010		IF Coupling
C43	12		R3CC20SL120K	SI12	D6-120		GP1K-120		Fixed Trimmer
C44	800		V-9963-1	BPD-0008	DD-801	TM5T8	801-001	5HK-D5	2nd. Video IF Dec.
C45	800		V-9863-1	BPD-0008	DD-801	TM5T8	801-001	5HK-D5	2nd. Video IF Fil.
C46	800		V-9863-1	BPD-0008	DD-801	TM5T8	801-001	5HK-D5	3rd. Video IF Dec.
C47	800		V-9863-1	BPD-0008	DD-801	TM5T8	801-001	5HK-D5	3rd. Video IF Cathode
C48	800		V-9863-1	BPD-0008	DD-801	TM5T8	801-001	5HK-D5	3rd. Video IF Fil.
C49	3.3		V-9926-3	SI3.3NP0	TCZ-3.3		NP0K-3R3		Fixed Trimmer
C50	12		R3CC20SL120K	SI12	D6-120		GP1K-120		Video Det. Filter
C51	5		V-9926-3	SI5NP0	TCZ-4.7		NP0K-050		Video Det. Filter
C52	56	500	RCM20B560K					MS-46	Fixed Trimmer

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (CONT.)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Westinghouse PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C53	.1	400	RCP10W4104M	P488-1	DF-104	PTE4P1		4TM-P1	Video Coupling
C54	5000		V-5596	BPD-005	DD-502	TM5D5	81L-005	5HK-D5	RF Bypass
C55	5000		V-5596	BPD-005	DD-502	TM5D5	81L-005	5HK-D5	RF Bypass ❖
C56	5000		V-5596	BPD-005	DD-502	TM5D5	81L-005	5HK-D5	Picture Tube Fil.
C57	5000		V-5596	BPD-005	DD-502	TM5D5	81L-005	5HK-D5	Keyed AGC Cathode
C58	.25	400	RCP10W4254M	P488-25		PTE4P25		4TM-P25	AGC Filter
C59	.5		V-9626-3	B15M5P0	TCZ-4.7	5R5V5	NP0L-050	MS-55	Sound IF Coupling
C60	.002	600	RCP10W6202M	P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	1st. Sound IF Dec. †
C61	47	500	RCM20B470K	1469-00005	TCZ-47	5R5Q5	NP0L-470	MS-45	Fixed Trimmer
C62	5000		V-5596	BPD-005	DD-502	TM5D5	81L-005	5HK-D5	RF Bypass
C63	47	500	RCM22B470K	1469-00005	TCZ-47	5R5Q5	NP0L-470	MS-45	IF Coupling
C64	5000		V-5596	BPD-005	DD-502	TM5D5	81L-005	5HK-D5	2nd. Sound IF Dec.
C65	820	500	RCM23C821K						Diode Load Cap.
C66	.002	400	RCP10W6202M	P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	De-Emphasis
C67	.02	400	RCP10W4203M	P488-02	DF-203	PTE4S2		4TM-S2	Audio Coupling
C68	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Tone Comp.
C69	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C70	5000		V-5596	BPD-005	DD-502	TM5D5	81L-005	5HK-D5	AF Amp. Fil. Bypass
C71	5000		V-5596	BPD-005	DD-502	TM5D5	81L-005	5HK-D5	RF Bypass
C72	150	500	RCM20B151M	1469-00015	DE-151		GP2K-151	1FM-315	AF Amp. Plate Bypass
C73	.005	400	RCP10W4502M	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Audio Coupling
C74	.02	600	RCP10W6203M	P688-02	DF-203	PTE6S2		6TM-S2	Audio Output Plate
C75	270	500	RCM20B27UK	1469-0003	D6-271	5R5T3	GP2K-271	MS-33	Sync. Coupling
C76	5000		V-5596	BPD-005	DD-502	TM5D5	81L-005	5HK-D5	Sync. Amp. Fil.
C77	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Sync. Coupling
C78	.25	400	RCP10W4254M	P488-25		PTE4P25		4TM-P25	Sync. Coupling
C79	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Sync. Coupling
C80A	.002			P688-002		PTE6D2	GP2-333-202		Vert. Integrator Net
B	.005		♦V-9213	P688-005	♦PC-100	PTE6D5	GP2-333-502	♦401C1	Vert. Integrator Net
C	.005			P688-005		PTE6D5	GP2-333-502		Vert. Integrator Net
C81	.01	600	RCP10W4103K	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Vert. MV Feedback
C82	.05	400	RCP10W4503M	P488-05	DF-503	PTE4S5		4TM-S5	Vert. MV Cathode
C83	.05	400	RCP10W4503K	P488-05	DF-503	PTE4S5		4TM-S5	Vert. Discharge
C84	.1	400	RCP10W4104M	P488-1	DF-104	PTE4P1		4TM-P1	Horiz. Sweep Coupling
C85	.1	600	RCP10M6104M	P688-1	DF-104	PTE6P1		6TM-P1	Vert. Sweep Coupling
C86	100	500	RCM20B101K	1468-0001	D6-101	5W5T1	GP1K-101	1FM-31	Horiz. Sync. Coupling
C87	100	500	RCM20B101K	1468-0001	D6-101	5W5T1	GP1K-101	1FM-31	Horiz. Sync. Coupling
C88	330	500	RCM20B331K	1469-00035					Horiz. Feedback
C89	680	500	RCM20B681K	1470-0007		5R5T7		MS-37	Voltage Divider
C90	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Horiz. AFC Filter
C91	.005	400	RCP10W4502M	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Horiz. AFC Filter
C92	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Horiz. AFC Filter
C93	.1	400	RCP10W4104M	P488-1	DF-104	PTE4P1		4TM-P1	Horiz. AFC Filter
C94	100	500	RCM20B101K	1469-0001		5R5T1		MS-31	Horiz. MV Plate
C95	100	500	RCM20B101K	1469-0001		5R5T1		MS-31	Horiz. MV Feedback
C96	.1	400	RCP10W4104M	P488-1	DF-104	PTE4P1		4TM-P1	Horiz. Hold Bypass
C97	3900	500	RCM30C392K	1469-0004		1R5D4			Horiz. Hold Trimmer
C98	.1	400	RCP10W4104M	P488-1	DF-104	PTE4P1		4TM-P1	RF Bypass
C99	820	500	RCM20C821K						Horiz. Discharge
C100	.01	600	RCP10M6103M	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Horiz. Sweep Coupling
C101	.1	600	RCP10M6104M	P688-1	DF-104	PTE6P1		6TM-P1	Horiz. Output Screen
C102	.1	400	RCP10W4104M	P488-1	DF-104	PTE4P1		6TM-P1	Horiz. Output Cathode
C103	.06	600	RCP10M6603M	684-06		PTE6S6		6TM-S6	Damper Filter
C104	.06	600	RCP10M6603M	684-06		PTE6S6		6TM-S6	Damper Filter
C105	500	20000	V-9901-2	BY20C	TV3-502	MM-C20T5			HV Filter
C106	.25	600	RCP10M6254M	684-25		PTE6P25		6TM-P25	Horiz. Sweep Coupling
C107	.01	600	V-5040-15	6892GXY-01		PJ6S1		6TM-P1	Line Filter
C108	.01	600	V-5040-15	6892GXY-01		PJ6S1		6TM-P1	Line Filter
C109	5000		V-5596	BPD-005	DD-502	TM5D5	81L-005	5HK-D5	1st. Sound IF Cathode *
C110	5000		V-5596	BPD-005	DD-502	TM5D5	81L-005	5HK-D5	Horiz. Output Screen *

* Not used in all models.
† Some models use 470**MMF** in this application
‡ Some models use .005 **MFD** in this application (Part #V-5596)
❖ Some models use 180 **MFD** in this application (Part #RCM20C181J)
♦ Items C80A, C80B, C80C, R83A, R83B, R83C are combined in one unit.

CONTROLS

ITEM No	RATING RESIST-ANCE	RATING WATTS	REPLACEMENT DATA Westinghouse PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1500Ω	½	V-9877-3	Concentrikit B17-110 *	RTV-288	SHBT-704-S	Contrast Control - Panel
B	500KΩ	½		B18-133X *			Volume Control - Tapped@50KΩ - Rear
C	Shaft end		Not Req.	E202 *			Attach per instructions in Concentrikit
D	Switch		Not Req.	76-1 *			Attach per instructions in Concentrikit
R2A	125KΩ	½	1-10918-1			AG-52-S	Horiz. Hold Control
B	Shaft		Not Req.			KSS-3	Attach to R2A per instructions
R3A	50KΩ	½	V-10914-1	Q11-123	AG-44-S	AN-31	Brightness Control
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Attach to R3A per instructions
R4A	500KΩ	½	V-9894-1	Q11-133	AG-58-S	AN-59	Vert. Hold Control
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Attach to R4A per instructions
R5A	5000Ω	½	V-5463	Q11-14	AG-10-S	AN-10	Vert. Linearity Control
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Attach to R5A per instructions
R6A	250KΩ	½	V-9813-3	Q11-130	AG-55-S	AN-50	Height Control
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Attach to R6A per instructions

* Additional Parts to be used with concentrikit

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Westinghouse PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ±10% UNLESS OTHERWISE NOTED
R7	15KΩ	20% 1		BTS-15K	RF Amp. Grid
R8	82Ω	1		BTS-82	RF Amp. Cathode
R9	1000Ω	1		BTS-1000	RF Amp. Screen
R10	220KΩ	1		BTS-220K	Mixer Grid
R11	1000Ω	1		BTS-1000	Mixer Plate
R12	2200	20% 1		BTS-2200	Converter Cathode
R13	15KΩ	20% 1		BTS-15K	Osc. Grid
R14	4700Ω	20% 1		BTS-4700	Osc. Plate

RESISTORS (CONT.)

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Westinghouse PART No.	IRC PART No.	IDENTIFICATION CODES
R15	8200Ω	1		BTS-8200	RF Amp. Decoupling
R16	2200Ω	20% 1		BTS-2200	Mixer Screen
R17	220Ω	1		BTS-220	Mixer Cathode
R18	3900Ω	1		BTS-3900	Osc. Coil Shunt
R19	200Ω	1			Osc. Coil Shunt
R20	150Ω	1	RC20AE151K	BTS-150	Decoupling
R21	1.5Meg	1	RC20AE155K	BTS-1.5Meg	AGC Network
R22	2200Ω	1	RC20AE222K	BTS-2200	1st. Video IF Grid
R23	10Ω	1	RC20AE100K		Parasitic Suppressor
R24	68KΩ	1	RC20AE683K	BTS-68K	AGC Network
R25	33KΩ	1	RC20AE333K	BTS-33K	AGC Network
R26	10KΩ	20% 1	RC20AE103M	BTS-10K	AGC Network
R27	68Ω	1	RC20AE680K		1st. Video IF Amp. Cathode
R28	2700Ω	20% 1	RC20AE272K	BTS-2700	1st. Video IF Amp. Decoupling
R29	4700Ω	5% 1	V-9927-2	BTS-4700 5%	2nd. Video IF Coil Shunt
R30	68Ω	1	RC20AE680K		2nd. Video IF Amp. Cathode
R31	470Ω	20% ½	RC20AE471M	BTS-470	2nd. Video IF Amp. Decoupling
R32	4700Ω	5% 1	V-9927-2	BTS-4700 5%	3rd. Video IF Coil Shunt
R33	150Ω	1	RC20AE151K	BTS-150	3rd. Video IF Amp. Cathode
R34	470Ω	20% ½	RC20AE471M	BTS-470	3rd. Video IF Amp. Decoupling
R35	470Ω	20% ½	RC20AE471M		Parasitic Suppressor - See Note 1
R36	18KΩ	1	RC20AE183K	BTS-18K	Isolation
R37	5600Ω	1	RC20AE562K	BTS-5600	Video Output Grid
R38	68KΩ	1	RC30AE683K	BTA-68K	Video Output Screen
R39	3900Ω	2	RC40AE392K	BTB-3900	Video Output Plate
R40	22KΩ	1	RC20AE223K	BTS-22K	Video Peaking Coil Shunt
R41	100KΩ	1	RC20AE104K	BTS-100K	Video Peaking
R42	100KΩ	1	RC20AE104K	BTS-100K	Picture Tube Cathode
R43	12KΩ	1	RC20AE123K	BTS-12K	Voltage Divider
R44	68KΩ	1	30AE683K	BTA-68K	Voltage Divider
R45	470KΩ	20% ½	RC20AE474K	BTS-470K	Voltage Divider
R46	470KΩ	20% ½	RC20AE474K	BTS-470K	Voltage Divider
R47	470KΩ	20% ½	RC20AE474K	BTS-470K	Voltage Divider
R48	220KΩ	1	RC20AE224K	BTS-220K	Focus Grid Load
R49	470KΩ	1	RC20AE474K	BTS-470K	Picture Tube Grid
R50	33KΩ	1	RC30AE333K	BTA-33K	Keyed AGC Cathode - See Note 2
R51	33KΩ	1	RC30AE333K	BTA-33K	Keyed AGC Cathode - See Note 1
R52	4700Ω	½	RC20AE472K	BTS-4700	Keyed AGC Grid
R53	3300Ω	1	RC30AE332K	BTA-3300	Voltage Divider
R54	150Ω	½	RC20AE151K	BTS-150	1st. Sound IF Amp. Cathode - See Note 3
R55	4700Ω	1	RC30AE472K	BTA-4700	1st. Sound IF Amp. Decoupling - See Note 4
R56	220KΩ	1	RC20AE224K	BTS-220K	2nd. Sound IF Amp. Grid
R57	12KΩ	1	RC20AE123K	BTS-12K	2nd. Sound IF Amp. Decoupling
R58	27KΩ	1	RC20AE273K	BTS-27K	Voltage Divider - See Note 1
R59	22KΩ	1	RC20AE223K	BTS-22K	Voltage Divider
R60	47KΩ	1	RC20AE473K	BTS-47K	De-emphasis
R61	10KΩ	1	RC20AE103M	BTS-10K	Tone Compensation
R62	12KΩ	1	RC20AE123K	BTS-12K	Ratio Det. Diode Load
R63	10Meg	20% ½	RC20AE106M	BTS-10Meg	AF Amp. Grid
R64	560Ω	1	RC20AE561K	BTS-560	AGC Network
R65	4.7Meg	1	RC20AE475K	BTS-4.7Meg	Voltage Divider
R66	330KΩ	1	RC20AE334K	BTS-330K	AF Amp. Plate
R67	1Meg	1	RC20AE105K	BTS-1Meg	Feedback Network
R68	150Ω	20% ½	RC20AE151K		Parasitic Suppressor
R69	470KΩ	1	RC20AE474K	BTS-470K	Output Grid
R70	150Ω	1	RC30AE151K	BTA-150	Output Cathode
R71	680Ω	5	V-6984-2	1 3/4A-700	Output Decoupling - Wire Wound
R72	470KΩ	1	RC20AE474K	BTS-470K	Sync. Amp. Grid
R73	6800Ω	5% ½	RC20AE682M	BTS-6800 5%	Sync. Amp. Plate
R74	220KΩ	1	RC20AE224K	BTS-220K	Isolation
R75	1Meg	1	RC20AE105K	BTS-1Meg	Sync. Seperator Grid
R76	150KΩ	1	RC20AE154K	BTS-150K	Sync. Seperator Plate
R77	4700Ω	½	RC20AE472K	BTS-4700	Sync. Clipper Cathode
R78	1Meg	½	RC20AE105K	BTS-1Meg	Sync. Clipper Grid
R79	15KΩ	5	V-6984-15		Voltage Divider - Wire Wound
R80	680KΩ	½	RC20AE684K	BTS-680K	Noise Clipper Diode Load
R81	27KΩ	½	RC20AE273K	BTS-27K	Integrator Network
R82	2200Ω	½	RC20AE222K	BTS-2200	Integrator Network
R83A	22KΩ	½		BTS-22K	Integrator Network
B	8200Ω	½	V-9313 ♦	BTS-8200	Integrator Network
C	82000Ω	½		BTS-82000	Integrator Network
R84	100KΩ	1	RC30AE104K	BTA-100K	Vert. MV Plate
R85	100KΩ	½	RC20AE104K	BTS-100K	Vert. MV Plate
R86	1200Ω	½	RC20AE122K	BTS-1200	Vert. MV Cathode
R87	470KΩ	½	RC20AE474K	BTS-470K	Vert. MV Grid
R88	39KΩ	½	RC20AE393K	BTS-39K	Vert. MV Plate
R89	100KΩ	½	RC20AE104K	BTS-100K	Vert. MV Plate Decoupling
R90	39KΩ	2	RC40AE393K	BTB-39K	Voltage Divider
R91	10KΩ	½	RC20AE103K	BTS-10K	Vert. Peaking
R92	2.2Meg	½	RC20AE225K	BTS-2.2Meg	Vert. Ouput Grid
R93	470Ω	½	RC20AE471K	BTS-470	Vert. Output Cathode
R94	56KΩ	1	RC30AE563K	BTA-56K	Vert. Output Decoupling - See Note 1
R95	12.5K	5	V-6984-14	1 3/4A-12.5K	Vert. Output Decoupling - Wire Wound
R96	1Meg	½	RC30AE105K	BTS-1Meg	Horiz. AFC Diode Load
R97	1Meg	½	RC20AE105K	BTS-1Meg	Horiz. AFC Diode Load
R98	220KΩ	½	RC20AE224K	BTS-220K	Horiz. AFC Filter
R99	470KΩ	½	RC20AE474M	BTS-470K	Horiz. AFC Filter
R100	47KΩ	½	RC20AE473K	BTS-47K	Horiz. AFC Filter
R101	150KΩ	1	RC30AE154K	BTA-150K	Horiz. AFC Feedback
R102	150KΩ	1	RC30AE154K	BTA-150K	Horiz. AFC Feedback
R103	680	½	RC20AE681K	BTS-680	Horiz. MV Cathode
R104	330KΩ	½	RC20AE334K	BTS-330K	Horiz. MV Grid
R105	270KΩ	½	RC20AE274K	BTS-270K	Horiz. MV Plate
R106	27KΩ	½	RC30AE273K	BTS-27K	Horiz. MV Plate
R107	56KΩ	1	RC30AE563K	BTA-56K	Horiz. MV Plate Decoupling
R108	33KΩ	½	RC20AE333K	BTS-33K	Horiz. Osc. Coil Shunt
R109	12KΩ	½	RC20AE123K	BTS-12K	Horiz. Peaking
R110	470KΩ	½	RC20AE474K	BTS-470K	Horiz. Output Grid
R111	33Ω	1	RC30AE330K	BW-1-33	Horiz. Output Cathode
R112	33KΩ	½	RC30AE333K	BTS-33K	Filter
R113	10KΩ	10	V-9600-4	1 3/4A-10K	Horiz. Output Screen - Wire Wound
R114	10KΩ	½	RC20AE103K	BTS-10K	AGC Network
R115	330KΩ	1	V-9927-7		HV Filter
R116	330KΩ	1	V-9927-7		HV Filter

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Westinghouse PART No.	IRC PART No.	IDENTIFICATION CODES
R117	220KΩ	20% 1	RC20AE224K	BTS-220K	Line Isolation
R118	150Ω	20% 1	RC20AE151K		Parasitic Suppressor
R119	22KΩ	½	RC20AE223K	BTS-22K	Video Peaking Coil Shunt
R120	470KΩ	½	RC20AE474M	BTS-470K	Height Control Shunt - See Note 1

Note 1. Not used in all Models
Note 2. Some Models use a 15KΩ Resistor in this application
Note 3. Some Models use a 68Ω Resistor in this application
Note 4. Some Models use a 1000Ω Resistor in this application
♦ Items R83A, R83B, R83C, C80A, C80B, C80C are combined in one unit

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	REPLACEMENT DATA SEC. 2	SEC. 3	Westinghouse PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @1.8A	680VCT @.220ADC	5VAC @3A	12.6VCT @5A	V-9958-1	P-8169 ①	P-3066	TP-365

①Add Series Resistor to reduce high voltage

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	DC RESISTANCE SEC.	Westinghouse PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	540Ω Tapped @30Ω	12.7Ω Tapped @.7Ω & 8.7Ω	V-10214-1		HV0-7 MWC-1 ②		Horiz. Output Trans.
		SEC. 2 0Ω					
T3	1800Ω Tapped @.7Ω		V-10909-1	A-8141	A-3039		Vert. Output Trans.
T4A	12.5Ω	57Ω	V-10911-3	DY-8	MDF-70		Hor. Deflection Coils
B	57Ω		V-10911-4 ③				Vert. Deflection Coils

② Replace width coil with MWC-1
③ Alternate Deflection Yoke

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	IMPEDANCE SEC.	DC RES. PRI.	DC RES. SEC.	Westinghouse PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T5	2KΩ	3.2Ω	220Ω	.5Ω	V-10288-2	A-3876	A-2928	H0-2	

SPEAKER

ITEM No.	RATINGS FIELD RES.	RATINGS V. C. IMP.	Westinghouse PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1A	P.M.	3.2Ω	V-10030-1 ② V-9770-1 ③	ST-803 Mod. P525-V	52A1	② Used in Models H667T17 & H668T17 ③ Used in Models H678K17 & H679K17
	CONE DIA.	V. C. DIA.				
SP1B	5¾"	9/16"				

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D.C. RESISTANCE	RATINGS INDUCTANCE (@ CURRENT 1000 ↵)	Westinghouse PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
L1	.220ADC	40Ω	1.5 Henries	V-6471-2	C-2326 ④	C-2991 ④	TR-3300 ④	④ Drill One New Mounting Hole.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	Westinghouse PART No.	MERIT PART No.	IRC PART No.	NOTES
L2	Ant. Trans.	0Ω	0Ω				
L3	Ant. Coils	0Ω					
L4	Ant. Coil	0Ω					
L5	Fil. Choke	0Ω					
L6	RF Coil	0Ω					
L7	RF Coils	0Ω					
L8	U.H.F. Ant. Coil	0Ω					
L9	U.H.F.Ant. Coil	0Ω					
L10	Mixer Grid Coil	0Ω					
L11	Mixer Grid Coils	0Ω					
L12	Osc. Coil	0Ω					Channel 13
L13	Osc. Coils	0Ω					
L14	Conv. Plate	1Ω					
L15	Fil. Choke	0Ω		V-6886-2			Not used in all Models
L16	Ist. Video IF	0Ω		V-9883-4			
L17	41.25MC Trap	0Ω		V-10586-1			
L18	Fil. Choke	0Ω		V-6886-2			
L19	Fil. Choke	0Ω		V-6886-2			

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

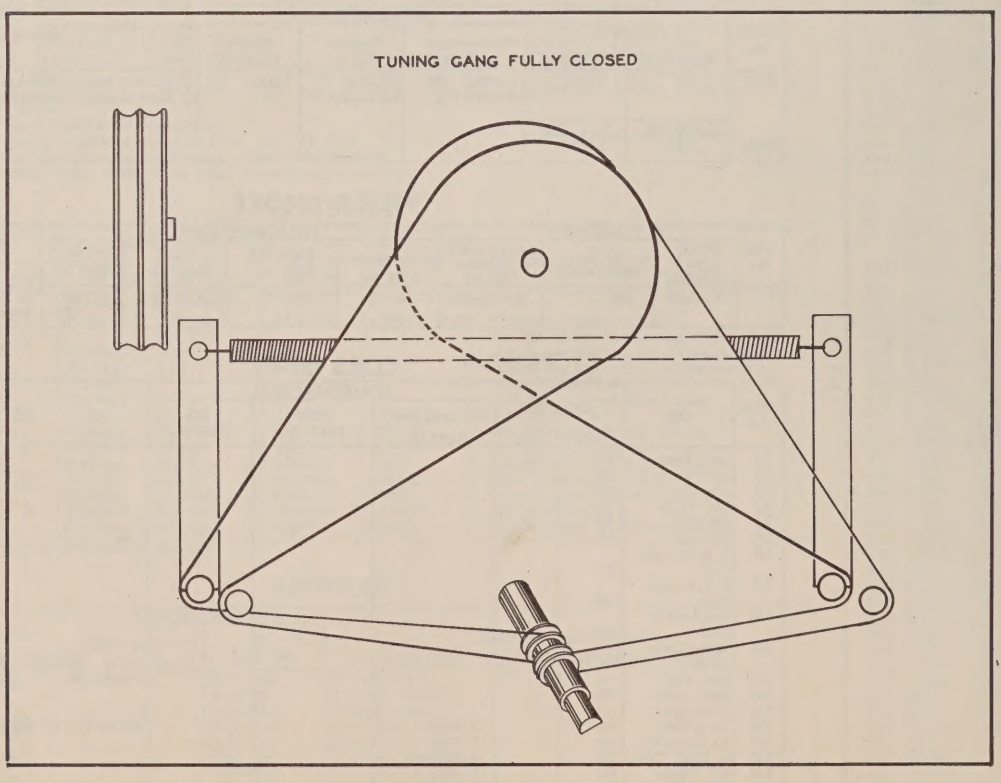
ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	Westinghouse PART No.	MERIT PART No.	IRC PART No.	
L20	2nd. Video IF	.5Ω	.4Ω	V-9879			
L21	Adj. Channel IF Trap	0Ω		V-10771			
L22	3rd. Video IF	.5Ω	.4Ω	V-9879			
L23	4th. Video IF	.5Ω	.4Ω	V-9880			
L24	RF Choke	.8Ω		V-4886-1			
L25	Peaking Coil	4.4Ω		V-9915-1			100 Microhenries
L26	RF Choke	.8Ω		V-4886-1			
L27	Fil. Choke	0Ω		V-4886-2			
L28	4.5MC Trap	1Ω		V-9882-3			
L29	Peaking Coil	7.8Ω		V-5902-1			140 Microhenries
L30	Peaking Coil	7Ω		V-5902-5			250 Microhenries
L31	RF Choke	.8Ω		V-4886-1			
L32	lst. Sound IF	4.3Ω		V-9882-3			
L33	2nd. Sound IF	1Ω		V-9882-2			
L34	Fil. Choke	0Ω		V-4886-2			
L35	Ratio Det. Trans.	3.9Ω	1.2Ω	V-9884			Tap @ 1.2Ω
L36	Horiz. Osc.	70Ω		V-6764			
L37	Plate Choke	2.2Ω				CLA	2.7 Microhenries
L38	Fil. Choke	2.2Ω		V-9099-5		CLA	2.7 Microhenries
L39	Plate Choke	0Ω					
L40	Width Coil	1Ω	95Ω	V-9902			
L41	Horiz. Line.	20Ω		V-9960	MWC-1		

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					Westinghouse PART No.		
M1	Bayonet	7.5	.2	White			Type #51

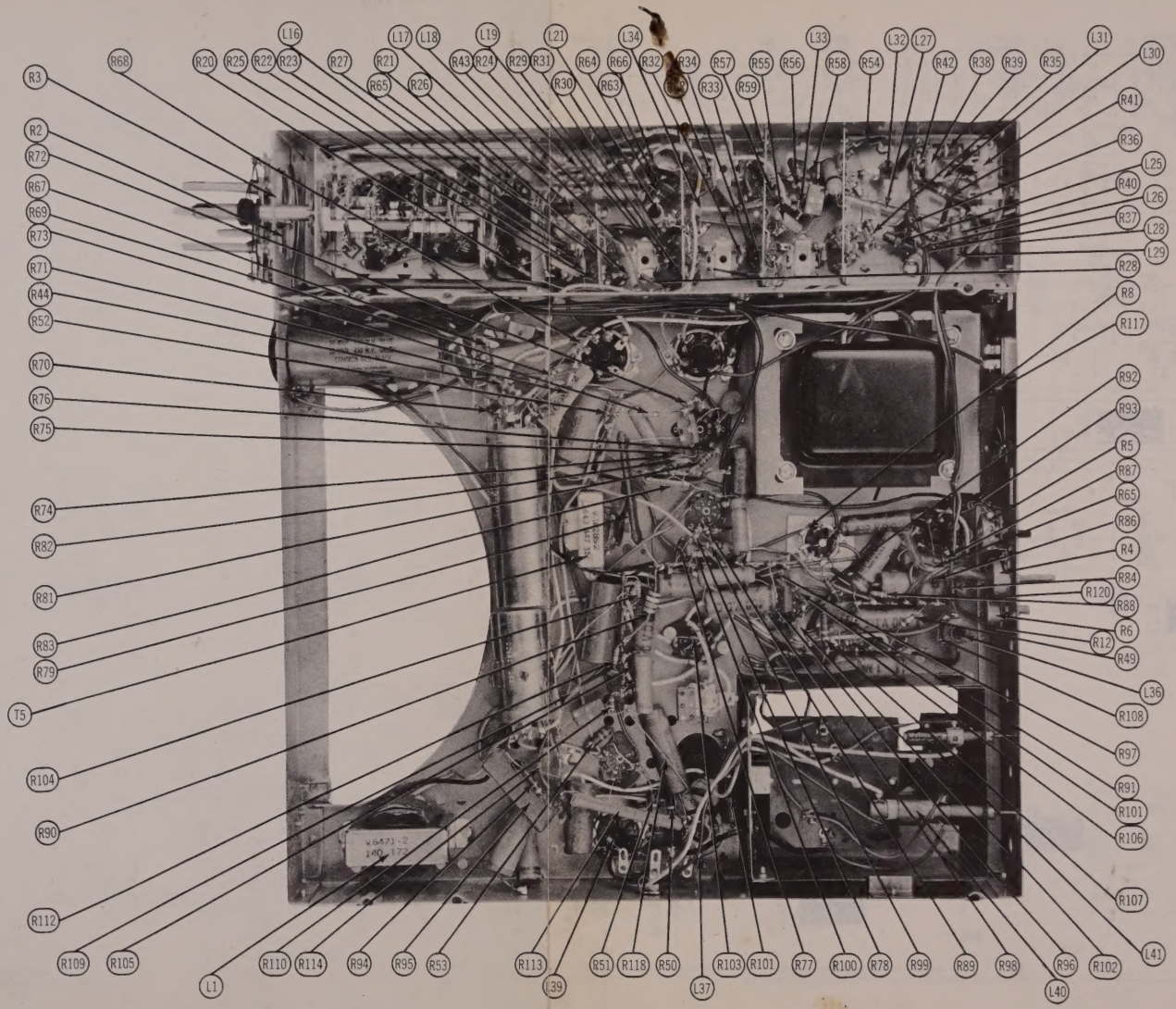
MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M2	RF Tuner	V-10880-1	Complete with Tubes
M3	Crystal	V-10916-1	1N64, 1N60, CK706
M4	Ion Trap		
A9	Trimmer	V-9876	41.25MC Trap (1.6 - 18MMF)
B1	Trimmer	V-11228-1	Horiz. Mult. (5 - 40MMF)
	Knob	V-9938-4	Off/On Volume
	Knob	V-9939-5	Contrast
	Knob	V-9940-3	Fine Tuning
	Knob	V-10676-2	Channel Selector
	Knob	V-10926-1	Horiz. Hold & Brightness



FINE TUNING DRIVE CORD STRINGING

/PROPERTY OF
E. E. BLANKENSHIP



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION